MAIN FILE

co Power, LLC
demacher Power Station
pe I Solid Waste Facility Permit Application
n Management Area
ndfill & Leachate Collection/Runoff Pond

rce, Rapides Parish, Louisiana

ume I of III

Prepared for:

Cleco Power, LLC 2030 Donahue Ferry Road PO Box 5000 Pineville, Louisiana 71360

Prepared by:

Shaw Environmental & Infrastructure, Inc. 4171 Essen Lane Baton Rouge, Louisiana 70809

PUBLIC NOTICE LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY (LDEQ) CLECO POWER, LLC, RODEMACHER POWER STATION TECHNICALLY COMPLETE TYPE I SOLID WASTE PERMIT APPLICATION

The LDEQ, Office of Environmental Services, has determined that a Type I solid waste permit application for Cleco Power, LLC., 2030 Donahue Ferry Road, Pineville, Louisiana 71360 for the Rodemacher Power Station is technically complete and acceptable for public review. The facility is located at 275 Rodemacher Road, which is approximately 2.5 miles west of Boyce. It is situated on the north side of Lake Rodemacher and is bounded on the northeast by Interstate 49, on the north by Highway 8 and on the south by Highway 121 in Rapides Parish.

Cleco Power, LLC. proposes to operate a Type I industrial solid waste landfill to store the by-product materials from the combustion of solid fuels in the Ash Management Area.

Written comments, written requests for a public hearing or written requests for notification of the final decision regarding this permit action may be submitted to Ms. Soumaya Ghosn at LDEQ, Public Participation Group, P.O. Box 4/313, Baton Rouge, LA 70821-4313. Written comments and/or written requests must be received by 12:30 p.m., Thursday, April 13, 2006. Written comments will be considered prior to a final permit decision.

If LDEQ finds a significant degree of public interest, a public hearing will be held. LDEQ will send notification of the final permit decision to the applicant and to each person who has submitted written comments or a written request for notification of the final decision.

The technically complete Type I solid waste permit application (3 Volumes) and the environmental assessment statement also known as the environmental impact questions are available for review at the LDEQ Public Records Center, Room 127, 602 North 5th Street, Baton Rouge, LA. Viewing hours are from 8:00 a.m. to 4:30 p.m., Monday through Friday (except holidays). Additional copies may be reviewed at the Rapides Parish Library, Boyce Branch, 500 A Ulster, Boyce, Louisiana 71409, the Rapides Parish Police Jury, Parish Courthouse, 701 Murray Street, Alexandria, LA 71309 and at the LDEQ Northeast Regional Office, 1823 Highway 546, West Monroe, LA 71292.

Inquiries or requests for additional information regarding this permit action should be directed to Kenya Gillingham, LDEQ, Water & Waste Permits Division, P.O. Box 4313, Baton Rouge, LA 70821-4313, phone (225) 219-3070.

Persons wishing to be included on the LDEQ permit public notice mailing list or for other public participation related questions should contact the Public Participation Group in writing at LDEQ, P.O. Box 4313, Baton Rouge, LA 70821-4313, by email at <a href="mailto:ma

Permit public notices including electronic access to general information from the technically complete Type I solid waste permit application can be viewed at the LDEQ permits public notice webpage at www.deq.state.la.us/news/PubNotice/ and general information related to the public participation in permitting activities can be viewed at www.deq.louisiana.gov/portal/tabid/2198/Default.aspx.

Alternatively, individuals may elect to receive the permit public notices via email by subscribing to the LDEQ permits public notice List Server at http://www.state.la.us/ldbc/listservpage/ldeq_pn_listserv.htm.

All correspondence should specify AI Number 2922, Permit Number GD-079-0390, and Activity Number PER20050011.



MAIN FILE

Cleco Corporation 2030 Donahue Ferry Rd P. O. Box 5000 Pineville, LA 71361-5000

January 23, 2006

Dr. Chuck Carr Brown Assistant Secretary Louisiana Department of Environmental Quality Post Office Box 4313 Baton Rouge, Louisiana 70821



Re:

Cleco Power, L.L.C.

Rodemacher Power Station – Agency Interest No. 2922 Rodemacher Brownfield Solid Fuel Unit 3 Project

PER 20050011/GD-079-0390

Solid Waste Permit Application - Ash Management Area

Dear Dr. Brown,

Cleco Power, L.L.C. (Cleco) is submitting six (6) bound copies of the final solid waste permit application for the above referenced facility, as requested in your correspondence dated January 17, 2006. This final application incorporates all previously accepted revisions and comments.

Cleco Power, L.L.C. (Cleco) is proposing to install and operate a new Circulating Fluidized Bed (CFB) unit consisting of two 330 MW CFB boilers and a new steam cycle and turbine at the Rodemacher Power Station (RPS) located near Boyce, Rapides Parish, Louisiana to provide approximately 660 MW gross (approximately 600 MW net) electric output. The CFB boilers will operate on the combustion of solid fuel, either petroleum coke (primary fuel source) or coal and limestone. This combustion process will produce fly and bed ash which Cleo intends to market as a by-product. Since this market for the material may take some time to develop, Cleco is proposing this Type I solid waste landfill and associated leachate collection pond to ensure that the materials are managed in an environmentally sound manner. The landfill will be utilized to store ash produced by the combustion process while that market is developed.

Enclosed are the six copies of this application for public review. If you or members of your staff have questions please feel free to contact me at (318) 484-7718.

Sincerely,

Paul D. Miller
Director, Environmental Services



LDEG



DEPARTMENT OF ENVIRONMENTAL QUALITY

KATHLEEN BABINEAUX BLANCO GOVERNOR

MIKE D. McDANIEL, Ph.D.

CERTIFIED MAIL 7004 1160 0000 3793 7600 RETURN SERVICE REQUESTED

SECRETARY

Mr. Paul D. Miller, Director Environmental Services Cleco Corporation P.O. Box 5000 Pineville, LA 71360

RE:

Notice of Technical Completeness Cleco Corporation, Rodemacher Station Al# 2922 Rapides Parish

Dear Mr. Miller,

The Water and Waste Permits Division is in receipt of the final copies of your submittal date January 23, 2006. After review of this submittal, it has been determined that your permit renewal is technically complete and ready for public review.

The Environmental Assistance Division will distribute copies of your application for public review and place public notices in the appropriate newspapers in accordance with LAC 33:VII.513.F.3. Please contact Ms. Soumaya Ghosn at (225) 219-3276 for the date of publication and the dates for the comment period. At the conclusion of the comment period, the Water and Waste Permits Division will consider all comments and a decision will be made regarding your application.

Please reference the Agency Interest Number (AI# 2922), Site Identification Number (GD-079-0390), and Permit Activity Number (PER 20050011) on all future correspondence pertaining to this facility. If you have any questions concerning this matter, please contact Ms. Kenya Gillingham of the Solid and Hazardous Waste Permits Section at (225) 219-3139.

Sincerely,

Lenny M. Young
Administrator

Water and Waste Permits Division

kg

c: Northeast Regional Office

Jennifer Tassin, Shaw Environmental, Inc.

CLECO POWER, LLC RODEMACHER POWER STATION TYPE I SOLID WASTE FACILITY PERMIT APPLICATION ASH MANAGEMENT AREA LANDFILL AND LEACHATE COLLECTION/RUNOFF POND

January 2006

Prepared for: Cleco Power LLC. 2030 Donahue Ferry Road Pineville, Louisiana

Prepared by: Shaw Environmental and Infrastructure, Inc. 4171 Essen Lane Baton Rouge, Louisiana 70809



LOEQ

Cleco Power, L.L.C. Rodemacher Power Station

Solid Waste Permit Application - Type I Landfill and Leachate Collection Pond

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Volume III

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Certification Statement

"I certify under penalty of law that I have personally examined and I am familiar with the information submitted in this permit application and that the facility as described in this permit application meets the requirements of the solid waste rules and regulations. I am aware that there are significant penalties for knowingly submitting false information, including the possibility of fine and imprisonment."

Richard "Shan" Schatzle

Project Manager Shaw Environmental and Infrastructure, Inc. 4171 Essen Lane Baton Rouge, LA 70809

Media Type (check	one)		Agency Interest Number: _	2432
Hazardous Waste Solid Waste		Air Water		•
Sond waste	_ <u>X</u> _	water	 •	

Department of Environmental Quality Permits Division P.O. Box 82135 Baton Rouge, LA 70884-2135 (225) 765-0219

Addendum to Permit Applications per LAC 33:I.1701



Please Type Or Print	Cleco Power, L.L.C		For Permi	Division Use Only	
	Parent Company (if Company Cleco Corporation	any Name given above is a division)			
	Plant name (if any) Rodemacher Powe	r Station			
	Nearest town	Parish where located			
	Boyce	Rapides Parish			

Use attachments to provide the required information. "NA" is not an acceptable answer. If a particular section does not apply to you, explain why.

- 1. Please provide a list of the states where you as applicant* have federal or state environmental permits identical to, or of a similar nature to, the permit for which you are applying.
 - *This requirement applies to all individuals, partnerships, corporations, or other entities who own a controlling interest of 50% or more in your company, or who participate in the environmental management of the facility for an entity applying for the permit or an ownership interest in the permit.

Louisiana (only)

- 2. Do you owe any outstanding fees or final penalties to the Department? No X Yes If yes, please explain.
- 3. Is your company a corporation or limited liability company? No Yes X If yes, attach a copy of your company's Certificate of Registration and/or Certificate of Good Standing from the Secretary of State.

Certification:

I certify, under provisions in Louisiana and United States law which provide criminal penalties for false statements that based on information and belief formed after reasonable inquiry, the statements and information contained in this Addendum to the Permit Application, including all attachments thereto are true, accurate, and complete.

Responsible Official	
Name	
Steve Carter	
Title	
Vice President - Regulate	d Generation
Company	
Cleco Corporation	

City	State	Zip
Pineville	LA	71360
Business phone		
318.484.7707		
Signature of responsible off	icial(s)	
Date 18 Juny	2005	
		-

Print Date: 7/13/2005

The Department may require the submission of additional information if it deems such information necessary.



SECRETARY OF STATE

As Secretary of State, of the State of Louisiana, I do hereby Certify that

a copy of a Merger document whereby CLECO UTILITY GROUP INC., organized under the laws of LOUISIANA, is merged into

CLECO POWER LLC

Organized under the laws of LOUISIANA,

Was filed and recorded in this Office on December 27, 2000, with an effective date of December 31, 2000 at 11:59 p.m.

In lestimony whereof, I have hereunto set my hand and caused the Seat of my Office to be affixed at the City of Baton Rouge on,

December 27, 2000

DWI 35014212K 35019872
Secretary of State



Permits Division Post Office Box 82135 Baton Rouge, LA 70884-2135 FOR DEPARTMENT USE ONLY: Site I.D. #_ Date Received_ Reviewed By SOLID WASTE NOTIFICATION FORM THIS NOTIFICATION IS: _____ THE FIRST FOR THIS SITE X __ A SUBSEQUENT NOTIFICATION LOUISIANA IDENTIFICATION NUMBER: LAD056522667 1. Name of Operator (and Company Name if Applicable) CLECO Power, LLC. 2. Mailing Address: 2030 Donahue Ferry Road, Pineville, LA 71360 3. Facility Name: Rodemacher Power Station 4. Actual Location/Description (street address if possible):275 Rodemacher Rd. Lena, LA 71447 5. Location: Section 80 Township 5N Range 4W Parish Rapides Parish Coordinates: Lat. - Degrees/Minutes, Seconds Long. - Degrees/Minutes, Seconds 6. Contact Robert St Romain 7. Telephone 318-793-1135 8. Owner: CLECO Power, LLC. 9. Owner's Address: 2030 Donahue Ferry Road, Pineville, LA 71360 10. Type and Purpose of Operation: (check each applicable line) ◆Generator of Industrial Solid Waste ___X (Generators must also submit supplemental Form) ___ (Transporters must also submit supplemental form) ◆Transporter ◆Type I Industrial Landfill Industrial Surface Impoundment Industrial Landfarm ◆Type I-A Industrial Incinerator Waste Handling Facility _____ Industrial Shredder/Compactor/Baler _____ Industrial Transfer Station _____ Type II Sanitary Landfill _ Residential/Commercial Surface Impoundment _____ Residential Commercial Landfarm _____

Department of Environmental Quality
Office of Environmental Services

Residential/Commercia Residential/Commercia Residential/Commercia Type III Construction/De Woodwaste Landfill Compost Facility Resource Recovery/Re	_	<u>-</u>	
	Processing Acres	 -	
attached document, and I accurate, and complete to penalties for submitting fa	ersonally examined and am hereby certify under penalty the best of my knowledge. Ise information, including the	y of law that this inform I am aware that there	nation is true, are significant -
Signature			
Date 18 Jucy	2005		
Typed Name and Title Ste	ve Carter, VP-Regulated Ge	eneration	

CAPITAL CITY PRESS

Publisher of THE ADVOCATE

PROOF OF PUBLICATION

The hereto attached notice was published in THE ADVOCATE, a daily newspaper of general circulation published in Raton Rouge, Louisians, and the official Journal of the State of Louisiana, the City of Baton Rouge, and the Parish of East Baton Rouge, in the following issues:

07/22/05

Sugar A Rush Public Notices Clark

Sworn and subscribed before me by the person whose signature appears above:

Pegeen Singley, Notary Public, #66665
My Commission Expires: Indefinite
Baton Rouge, Louisiana

DEO - OES 2005 JUL 25 PM 3: 20

Public Notice of

Intent To Submit Permit Application Cleco Rower, LLC:/ Rodemacher Power Station 795 Rodemacher Boad, Jena, Rapides Parish, Louisiana

Motice is hereby given that Gleco Power, LLC does littend to submit to the Bepartment of Environmental Quality Office of Environmental Scivices, 'Remits Division, an application for a demittation operate a Type! Solid Waste landill and associated surface impoundment in Repides Parish, Range 5N, Township 4W, Section 80, which is approximately 1.5 miles west of Boyce landing.

Comments concerning the facility may be filled with the secretary of the Louisiana Department of Environmental Quality at the following address:

Louisiana Department of Environmental Quality
Office of Environmental Services

Permits Division
Permits Division
Post Office Box 4313

###Baton Rouge, Louisiana 70821-4313

\$123814-jul-22-11

3123814

CLECO CORP ROBBYN COOPER PO BOX 5000 PINEVILLE

LA 71361-5000

AFFIDAVIT OF PUBLICATION

(A Correct Copy of Publication)

Public Notice

of Intent To Submit Permit Application eco Power, LLC / Rodemacher Power Station)5 Rodemacher Road, Jena, Rapides Parish, Louislana

is hereby given that Cleco Power, LLC does intend mit to the Department of Environmental Quality of Environmental Services. Permits Division, an atton for a permit to operate a Type I Solid Waste and associated surface impoundment in Rapides Range 5N Township 4W Section 80 which is alley 1.5 miles west of Boyce, Louisiana.

on the facility may be filed with the sec of the Louisiana Department of Environmental at the following address

uisiaria Department of Environmental Quality
Office of Environmental Services
Permits Division
Post Office Box 4313
Baton Rouge, Louislana 70821-4313

I, Bill Buschmann, Classified Advertising Manager
of THE TOWN TALK, published at Alexandria,
Louisiana do solemnly swear that the

Public Notice

advertisement, as per clipping attached, was published in the regular and entire issue of said newspaper, and not in any supplement thereof for one insertion commencing with the issue dated <u>June 24, 2005</u> and ending with the issue dated <u>June 24, 2005</u>.

Subscribed and sworn to before me

this 24th day of June, 2005

Bill Bur Coman

Votary Number

Public Notice

of

Intent To Submit Permit Application Cleco Power, LLC / Rodemacher Power Station 795 Rodemacher Road, Jena, Rapides Parish, Louisiana

Notice is hereby given that Cleco Power, LLC does intend to submit to the Department of Environmental Quality, Office of Environmental Services, Permits Division, an application for a permit to operate a Type I Solid Waste landfill and associated surface impoundment in Rapides Parish, Range 5N, Township 4W, Section 80, which is approximately 1.5 miles west of Boyce, Louisiana.

Comments concerning the facility may be filed with the secretary of the Louisiana Department of Environmental Quality at the following address:

Louisiana Department of Environmental Quality
Office of Environmental Services
Permits Division
Post Office Box 4313
Baton Rouge, Louisiana 70821-4313



1.0 Introduction

Cleco Power, LLC (Cleco) owns and operates an electric utility power station known as the Rodemacher Power Station (RPS) located near Boyce, Rapides Parish, Louisiana; the site identification number for RPS is GD-079-0390. Cleco is proposing to construct and operate the Ash Management Area within the RPS property. The area will be a Type I solid waste facility (also referenced in this document as the "facility" or "proposed facility") consisting of a landfill and an associated leachate collection/run-off pond (surface impoundment) to handle only solid waste ash generated from the operation and maintenance of the proposed Unit 3. Cleco submitted to the Louisiana Department of Environmental Quality (LDEQ) and the Environmental Protection Agency (EPA) a Title V Operating Permit Application in March 2005 for the unit, which consists of two circulating fluidized bed (CFB) utility boilers. The proposed facility will be constructed within the existing footprint of the perimeter levee system that was constructed in the early 1980s and permitted by the Army Corps of Engineers in 1977.

As mandated by Title 33, Part VII, Chapter 5 of the Louisiana Administrative Code (LAC 33:III.Chapter 5), Cleco has prepared a standard solid waste permit application for submittal to the LDEQ to construct and operate the proposed solid waste facility. This application addresses all requirements of the LDEQ's Solid Waste Permitting program under Subchapter C of LAC 33:VII.Chapter 5. This application has been prepared in a citation-response format. Each regulatory citation is presented in bold face and the response to the citation in normal typeface. Regulatory citations not applicable to this permit application are indicated as such and a rationale is presented as to why the section is not applicable. Supporting documentation is included as tables, figures, exhibits, and appendices. Referenced items are identified and included sequentially in the order in which they are referenced. The application specifically addresses in Section 2.0 through Section 7.0 the standards of the LDEQ's Solid Waste Regulations listed below.

- Section 2.0: §519.Part I: Permit Application Form
- Section 3.0: §521.Part II: Supplementary Information, All Processing and Disposal Facilities
- Section 4.0: §523.Part III: Additional Supplementary Information
- Section 5.0: §709. Standards Governing All Solid Waste Disposal Facilities (Type I and II)



- Section 6.0: §711. Standards Governing Landfills (Type I and II)
- Section 7.0: §713. Standards Governing Surface Impoundments (Type I and II)

As required under LAC 33:VII.519, the Solid Waste Standard Permit Application – Part I form, as contained in Appendix B of LAC 33:VII.3003, has been prepared and included in the application document prior to the regulatory responses. The Addendum to Permit Applications per LAC 33:I.1701 (Form 1701), as required under LAC 33:VII.520, is provided in this application prior to the regulatory responses. In addition, no sooner than 45 days prior to submittal of this standard permit application, Cleco published a public notice of the intent to submit the permit application in *The Advocate*, the official journal of this state, and in *The Town Talk* (Alexandria), a major local newspaper of general circulation, in accordance with LAC 33:VII.513.A.1. Financial assurance information has been provided within the appropriate responses to LAC 33:VII.521 (Section 3.0) and addresses the required information of LAC 33:VII.727.

Provided with the submittal of this standard solid waste permit application is a check in the amount of \$3,300 for the LDEQ application fee as listed under LAC 33:VII.525.

1.1 Facility Description

The proposed facility is primarily intended to temporarily store the by-product materials from the combustion of solid fuels in Unit 3 until they can be marketed for other uses. If sufficient materials can be sold off-site for beneficial use in a variety of industrial applications (e.g., soil stabilization, soil amendment, and Portland cement production), the facility will be used for at least the life of Unit 3. Permitting the Ash Management Area as a Type I solid waste facility allows Cleco to manage the material on-site in accordance with applicable solid waste regulations in the event there is not a large enough demand for this material. Should Cleco be unsuccessful in efforts to market all of the materials, this landfill which is designed to meet all the regulatory requirements of the Solid Waste Regulations, would provide an environmentally safe method for disposal. A similar but smaller scale CFB Unit at Nelson Industrial Steam Company started with a permitted solid waste landfill, but now markets all the ash products that they generate. All leachate and contact surface runoff from the active landfill area will be routed to the associated leachate collection/runoff pond prior to discharge through a LPDES permitted outfall. The area where the landfill is proposed is currently permitted for the expansion of an existing fly ash impoundment under permit P-0005.



1.2 Waste Characterization

The types of materials to be handled by the proposed facility (landfill and pond) will be non-hazardous, on-site-generated materials only. The materials consists of bed ash and fly ash generated as combustion by-products of solid fuel (coal, petcoke, or a blend) and limestone, from the two CFB electric utility boilers of the proposed Unit 3. None of the materials disposed are characteristic or listed hazardous wastes as defined by LAC 33:V.Subpart 1 or by federal regulations (this is confirmed by process knowledge of each waste).

Fly Ash

o Chemical Characteristics

Fly ash from the operation and maintenance of electric utility boilers, which utilize solid fuel, is composed primarily of oxides of silicon, aluminum, calcium, sulfur, and iron.

o Physical Characteristics

Fly Ash, as it is collected from the stack gas, is a tan colored finely powdered substance. It has a consistency similar to that of Talcum powder. Fly ash undergoes a distinct change in chemical and physical characteristics when mixed with water. Fly ash from western coal is a pozzolanic material, that is, its silicon oxide and aluminum oxide components react with its calcium fraction in the presence of water to form slow hardening cement. The result of this reaction produces a hard, structurally stable compound with very low permeability. It is this characteristic that makes fly ash a valuable resource that can be used as cement substitute for a variety of purposes. The John Hancock Center, the Sears Tower, and the Standard Oil Building are examples of high rise buildings that were constructed with concrete utilizing fly ash.

Bed Ash

o Chemical Characteristics

Bed Ash is generated concurrently with fly ash during the combustion of solid fuel. It is formed in the boiler when particles of ash fuse together. These fused particles become too large to remain entrained in the rising flue gas and fall to the bottom of the boiler. Due to their similar origins, Bed Ash has the same approximate chemical makeup as fly ash.



o Physical Characteristics:

Bed Ash is medium brown in color, has a sandy texture, and varies in diameter but typically is the approximate the size of coarse sand.

1.3 Existing On-Site Solid Waste Facilities

There are five permitted solid waste disposal facilities currently operating at the RPS, as identified below.

<u>Permit Number</u>	<u>Facilities</u>
P-0005	Unit 2 Metal Cleaning Waste Pond Bottom Ash Pond Fly Ash Pond
P-0027	Unit 1 Metal Cleaning Waste Pond
P-0062	Coal Sedimentation Runoff Pond

The Bottom Ash Pond and Fly Ash Pond of Permit P-0005 will be adjacent to the proposed facility and were constructed within the same area identified in the Army Corps of Engineers permit of 1977. Information relating to these facilities may be referenced within this application (i.e., soil borings, soil classifications, subsurface hydrology, etc.) as the information is pertinent to this application due to their adjacent location to the proposed facility. In addition, Cleco has implemented a unitized groundwater monitoring program that addresses all of the existing solid waste facilities in addition to the proposed facility.



2.0 LAC 33:VII.519. Part I: Permit Application Form

The applicant shall complete a standard permit application Part I Form (LAC 33:VII.3003). The following subsections refer to the items on the form requiring that information:

A. name of applicant (prospective permit holder) applying for a standard permit;

The applicants name is Cleco Power, LLC.

B. facility name;

The name of the facility is Rodemacher Power Station (RPS).

C. description of the location of the facility (identify by street and number or by intersection of roads, or by mileage and direction from an intersection);

The facility's address is 275 Rodemacher Rd., Lena, LA 71447.

D. geographic location (section, township, range, and parish where the facility is located, and the coordinates [as defined by the longitude and latitude to the second] of the centerpoint of the facility);

The geographic location of the facility is section 80, township 5N, range 4W, and is located in Rapides Parish. The latitude of the facility (in degrees/minutes/seconds) is 91° 43' 17" and the longitude (in degrees/minutes/ seconds) is 31°24'16".

E. mailing address of the applicant;

The mailing address of the applicant is 2030 Donahue Ferry Road, Pineville, LA 71360.

F. contact person for the applicant (position or title of the contact person is acceptable);

The name of the contact person is Robert St Romain.

G. telephone number of the contact person;

The telephone number for the contact person is (318)793-1135

H. type and purpose of operation (check each applicable box);

Generator of Industrial Solid Waste, Type I Industrial Landfill

I. status of the facility (if leased, state the number of years of the lease and provide a copy of the lease agreement);



Unit 1 is 100 percent owned by Cleco Power LLC, a subsidiary of Cleco Corp. Unit 2 is jointly owned by Cleco Power, Louisiana Electric Power Association and Lafayette Utilities System.

J. operational status of the facility;

RPS is an active steam/electric generating facility, which has been in operation since the mid 1970s. The proposed Type I landfill and leachate collection pond, which are the subject of this application, will be constructed upon issuance of this solid waste permit.

K. total site acreage and the amount of acreage that will be used for processing and/or disposal;

The total acreage of the facility is 6000 acres. There will be no acreage used for processing and 89 acres used for disposal.

L. list of all environmental permits that relate directly to the facility represented in this application;

The environmental permits that are directly related to the Rodemacher facility are:

- Air permit number 273, issued February 28, 1972;
- Air permit number 131, issued November 28, 1972;
- Air permit number 431, issued April 8,1975;
- Air permit number 1472 T, issued November 17, 1980;
- Air permit number 2360-0030-IV2, issued July 24, 2000;
- LPDES permit number LA0008036.

M. a letter attached from the Louisiana Resource Recovery and Development Authority (LRRDA) stating that the operation conforms with the applicable statewide plan;

(Note: In accordance with R.S. 30:2307.B, this regulation does not apply to solid waste disposal activity occurring entirely within the boundaries of a plant, industry, or business which generates such solid waste);

Not applicable. All solid waste disposal occurs entirely within the boundaries of the plant that generated the solid waste.

N. zoning of the facility (if the facility is zoned, note the zone classification and zoning authority, and include a zoning affidavit or other documentation stating that the proposed use does not violate existing land-use requirements);

According to the Rapides Parish Planning Commission, the facility is not zoned.

Cleco Power, L.L.C. Rodemacher Power Station

Solid Waste Permit Application – Type I Landfill and Leachate Collection Pond

O. types, maximum quantities (wet tons/week), and sources (percentage of the on-site or off-site-generated waste to be received) of waste to be processed or disposed of by the facility;

The maximum quantity of waste that will be handled by the proposed facility is approximately 650,000 tons annually, 148,000 lbs generated hourly. The types of materials to be disposed in the facility will be non-hazardous. The materials consists of bed ash and fly ash material generated as a combustion by-product of solid fuel (coal, petcoke, or a blend) and limestone within the two CFB electric utility boilers of the RPS Unit 3. The types of materials to be disposed of in the facility will be generated on-site only. No off-site-generated waste will be received at the facility.

P. indicate the specific geographic area(s) to be serviced by the solid waste facility;

The material to be disposed of at the facility will be generated on-site only.

Q. attach proof of publication of the notice regarding the submittal of the permit application as required in LAC 33:VII.513.A;

The proof of publication is found at the beginning of this permit application.

R. provide the signature, typed name, and title of the individual authorized to sign the application. Proof of the legal authority of the signatory to sign for the applicant must be provided; and

The signature, typed name, and title of the individual authorized to sign the application is found at the beginning of this permit application.

any additional information required by the administrative authority.

No additional information was required by the administrative authority.

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3.0 LAC 33:VII.521. Part II: Supplementary Information, All Processing and Disposal Facilities

The following information is required in the permit application for solid waste processing and disposal facilities. All responses and exhibits must be identified in the following sequence to facilitate the evaluation. Additionally, all applicable sections of LAC 33:VII.Chapter 7 must be addressed and incorporated into the application responses. If a section does not apply, the applicant must state that it does not apply and explain why.

- A. Location Characteristics. Standards pertaining to location characteristics are contained in LAC 33:VII.709.A (Type I and II facilities), LAC 33:VII.717.A (Type I-A and II-A facilities, and LAC 33.719.A (Type III facilities).
 - I. The following information on location characteristics is required for all facilities:
 - a. Area Master Plans. A location map showing the facility, road network, major drainage systems, drainage-flow patterns, location of closest population center(s), location of the public-use airport(s) used by turbojet aircraft or piston-type aircraft, proof of notification of affected airport and Federal Aviation Administration as provided in LAC 33:VII.709.A.2, location of the 100-year flood plain, and other pertinent information. The scale of the maps and drawings must be legible, and engineering drawings are required.

A site location map containing the information required by this regulation is provided as Figure 1. A map of the Rodemacher Power Station is included as Figure 2. The 100-year flood plain is specifically identified in Figure 3. A figure depicting the major drainage systems and their flow patterns has been developed and is included as Figure 35. Proof of notification of an affected airport and Federal Aviation Administration under LAC 33:VII.709.A.2 is not required as the application is for a Type I facility that will handle only nonputresible solid waste.

The proposed facility will be accessible at all times by all-weather roads that will meet the demands of the facility and the roads will be constructed to avoid congestion, sharp turns, obstructions, or other hazards conducive to accidents. All roads will be adequate to withstand the weight of transportation vehicles.

b. A letter from the appropriate agency or agencies regarding those facilities receiving waste generated off-site, stating that the facility will not have a significant adverse impact on the traffic flow of area roadways and that the construction, maintenance, or proposed upgrading of such roads is adequate to withstand the weight of the vehicles.

Not Applicable. Cleco does not receive waste generated off site.

c. Existing Land Use. A description of the total existing land use within three

miles of the facility (by approximate percentage) including, but not limited to:

Please see Figure 4 for a land use map within a 3 mile radius of the site

i. residential;

Within the 3 mile radius, less than 2-3% of the area is residential.

ii. health-care facilities and schools;

Only one school, Northwood High School, is located within a 3-mile radius of the site.

iii. agricultural;

Within the 3 mile radius, the existing land use is 25% agricultural.

iv. industrial and manufacturing;

Within the 3 mile radius, the only significant industrial use is the Rodemacher Power Station and the adjacent Boise Cascasde facility, which together accounts for 5% of the area.

v. other commercial;

Within the 3 mile radius, less than 2-3% of the area is commercial

vi. recreational; and

Not Applicable. There are no recreational areas within the 3 mile radius.

vii. undeveloped.

Within the 3 mile radius, the existing land use is 45% undeveloped.

d. Aerial Photograph. A current aerial photograph, representative of the current land use, of a one-mile radius surrounding the facility. The aerial photograph shall be of sufficient scale to depict all pertinent features. (The administrative authority may waive the requirement for an aerial photograph for Type III facilities.)

Please see Figure 5 for an aerial map showing a one-mile radius around the facility.

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- e. Environmental Characteristics. The following information on environmental characteristics:
 - i. a list of all known historic sites, recreation areas, archaeologic sites, designated wildlife-management areas, swamps and marshes, wetlands, habitats for endangered species, and other sensitive ecologic areas within 1,000 feet of the facility perimeter or as otherwise appropriate;

There are no known historic sites, recreation areas, designated wildlife-management areas, swamps and marshes, habitats for endangered species, and other sensitive ecologic areas within 1,000 feet of the facility perimeter or as otherwise appropriate. The facility is located in approximately 73.12 acres of wetlands previously permitted by the United States Army Corp of Engineers (COE) New Orleans District and subsequently, given approval by the LDEQ, for construction of a solid waste management unit. There is one archaeological site (RA113), approximately 900 feet to the north of the area. According to the Louisiana State Historic Preservation Office records, RA113 is not a defined site which is eligible for the National Register. The location of the proposed facility within the existing perimeter levee system precludes site operations from affecting this area. A site location map is provided as Figure 1.

ii. documentation from the appropriate state and federal agencies substantiating the historic sites, recreation areas, archaeologic sites, designated wildlife-management areas, wetlands, habitats for endangered species, and other sensitive ecologic areas within 1,000 feet of the facility; and

Correspondence from the COE, the State Historic Preservation Office, United States Fish and Wildlife Service, and Louisiana Department of Wildlife and Fisheries is provided in Appendix A.

iii. a description of the measures planned to protect the areas listed from the adverse impact of operation at the facility;

In addition, Cleco conducted an environmental impact assessment of the proposed facility, as included within the responses to the Environmental Impact Questions (Appendix M).

Specific information relating to Cleco's efforts to minimize the potential impact to the surrounding environment, as provided in the responses to LAC 33:VII.709.A.4 (Section 5.0) is provided below.

• A request for a Water Quality Certification has been submitted to the LDEQ in June 2005and was subsequently granted by the LDEQ.

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- An application for a Clean Water Act Section 404 Permit and a Rivers and Harbors Act Section 10 Permit was submitted by Cleco to the COE on May 16, 2005.
- A review of the USFWS and the Louisiana Department of Wildlife and Fisheries, Natural Heritage Program databases was conducted to determine if protected species may be present in Rapides Parish (Appendix A). Records indicate that the bald eagle (Haliaeetus leucocephalus), Louisiana pearlshell mussel (Margaritifera hembeli), pallid sturgeon (Scaphirhynchus albus), and red-cockaded woodpecker (Picoides borealis) have potential to be present within Rapides Parish. During an on-site protected species survey on August 16, 2004, no threatened or endangered species were observed within the proposed project area boundaries.
- Quality wildlife habitat is not expected to be adversely impacted by the proposed project. Project construction and operation will not impact Bayou Jean de Jean which is located adjacent to the eastern boundary of the proposed project area. The bayou and its associated riparian habitats will continue to function as a corridor for fish and wildlife species.
- The proposed facility will be located within an existing levee system of an area previously permitted for solid waste management. The levee system has remained intact, and has not shown any signs of deterioration or settlement over its 25-year lifespan due to the proper design and construction procedures. Native clay material was utilized for the levee system and was installed in lifts and compacted to design standards. The integrity of the system is maintained through vegetative growth and routine maintenance by site personnel.
- The base of the proposed facility will be provided with a liner system consisting of, at a minimum, three-feet of recompacted clay and a geosynthetic layer.
- The levee system and foundation of the proposed facility will ensure that all
 material stored within the unit, and the leachate/contact surface water generated
 during the use of the facility will remain within the unit and will not adversely
 impact area wetlands.
- The volume and chemical nature of the waste managed in the facility is provided within the Facility Operational Plan (Appendix E).
- The impacts on fish, wildlife, and other aquatic resources and their habitat from release of the solid waste will be minimized because of the perimeter levee system, liner system and operational procedures, as discussed within the Facility Operational Plan (Appendix E). All leachate and surface contact water generated from the landfill will be routed to the leachate collection/runoff pond prior to discharge through the LPDES permitted outfall R04.



- The potential effects of catastrophic release of waste to the wetland and the resulting impacts on the environment will be minimized because of the perimeter levee system, liner system and operational procedures, as discussed within the Facility Operational Plan (Appendix E). All leachate and surface contact water generated from the landfill will be routed to the leachate collection/runoff pond prior to discharge through the LPDES permitted outfall R04.
- The proposed facility will handle only non-hazardous material generated from the operation and maintenance of the two CFB utility boilers that will comprise Unit 3. As discussed within the Facility Operational Plan (Appendix E), the chemical and physical characteristics of the ash material do not pose a severe threat to the ecological resources in the area. In addition, the design of the proposed facility and the construction and operational procedures to be implemented will provide adequate methods to ensure that the ash material remains within the facility while stored and any leachate or contact surface generated during operation will be properly handled prior to discharge through a LPDES permitted outfall.
- Cleco is proposing to purchase credits at an approved Mitigation Bank as deemed acceptable by the COE, as compensatory mitigation for unavoidable impacts to the wetlands associated with the construction of the overland conveyor, barge unloading facility, and a dredge disposal area for the proposed Rodemacher Brownfield Solid Fuel Unit 3 Project. Mitigation Banking eliminates the temporal losses of wetland values that occur when proposed project impacts are realized. Utilization of Mitigation Banks as compensatory mitigation for wetland impacts will have a greater ecological benefit versus individual isolated or fragmented mitigation projects.

f. A wetlands demonstration, if applicable, as provided in LAC 33:VII.709.A.4.

Cleco conducted an environmental impact assessment of the proposed facility, as included within the responses to the Environmental Impact Questions (Appendix In addition, please note that the location of the proposed facility was previously permitted by the COE in 1977 (permit number LMNOD-SP) and later approved by the LDEQ. Cleco received a letter of confirmation from the COE, dated May 27, 2005, that the permit for this area is still valid. A copy of this letter is provided in Appendix A of this permit application. Specific information relating to Cleco's efforts to minimize the potential impact to the surrounding environment, as provided in the responses to LAC 33:VII.709.A.4 (Section 5.0) is provided below.

A request for a Water Quality Certification has been submitted to the LDEQ in June 2005 and was subsequently granted by the LDEQ.



- An application for a Clean Water Act Section 404 Permit and a Rivers and Harbors Act Section 10 Permit was submitted by Cleco to the COE on May 16, 2005.
- A review of the USFWS and the Louisiana Department of Wildlife and Fisheries, Natural Heritage Program databases was conducted to determine if protected species may be present in Rapides Parish (Appendix A). Records indicate that the bald eagle (Haliaeetus leucocephalus), Louisiana pearlshell mussel (Margaritifera hembeli), pallid sturgeon (Scaphirhynchus albus), and red-cockaded woodpecker (Picoides borealis) have potential to be present within Rapides Parish. During an on-site protected species survey on August 16, 2004, no threatened or endangered species were observed within the proposed project area boundaries.
- Quality wildlife habitat is not expected to be adversely impacted by the
 proposed project. Project construction and operation will not impact Bayou
 Jean de Jean which is located adjacent to the eastern boundary of the proposed
 project area. The bayou and its associated riparian habitats will continue to
 function as a corridor for fish and wildlife species.
- The proposed facility will be located within an existing levee system of an area previously permitted for solid waste management. The levee system has remained intact, and has not shown any signs of deterioration or settlement over its 25-year lifespan due to the proper design and construction procedures. Native clay material was utilized for the levee system and was installed in lifts and compacted to design standards. The integrity of the system is maintained through vegetative growth and routine maintenance by site personnel.
- The base of the proposed facility will be provided with a liner system consisting of, at a minimum, three-feet of recompacted clay and a geosynthetic layer.
- The levee system and foundation of the proposed facility will ensure that all
 material stored within the unit, and the leachate/contact surface water generated
 during the use of the facility will remain within the unit and will not adversely
 impact area wetlands.
- The volume and chemical nature of the waste managed in the facility is provided within the Facility Operational Plan (Appendix E).
- The impacts on fish, wildlife, and other aquatic resources and their habitat from release of the solid waste will be minimized because of the perimeter levee system, liner system and operational procedures, as discussed within the Facility Operational Plan (Appendix E). All leachate and surface contact water generated from the landfill will be routed to the leachate collection/runoff pond prior to discharge through the LPDES permitted outfall R04.



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- The proposed facility will handle only non-hazardous material generated from the operation and maintenance of the two CFB utility boilers that will comprise Unit 3. As discussed within the Facility Operational Plan (Appendix E), the chemical and physical characteristics of the ash material do not pose a severe threat to the ecological resources in the area. In addition, the design of the proposed facility and the construction and operational procedures to be implemented will provide adequate methods to ensure that the ash material remains within the facility while stored and any leachate or contact surface generated during operation will be properly handled prior to discharge through a LPDES permitted outfall.
- Cleco is proposing to purchase credits at an approved Mitigation Bank as deemed acceptable by the COE, as compensatory mitigation for unavoidable impacts to the wetlands associated with the construction of the overland conveyor, barge unloading facility, and a dredge disposal area for the proposed Rodemacher Brownfield Solid Fuel Unit 3 Project. Mitigation Banking eliminates the temporal losses of wetland values that occur when proposed project impacts are realized. Utilization of Mitigation Banks as compensatory mitigation for wetland impacts will have a greater ecological benefit versus individual isolated or fragmented mitigation projects.
- g. Demographic Information. The estimated population density within a three-mile radius of the facility boundary, based on the latest census figures.

The population within a one-mile radius of the proposed project boundaries consists of 101 people. The largest incorporated town within a 5-mile radius of the site is Boyce, which has a population of 1,190, based on the 2000 U.S. Census.

- 2. The following information regarding wells, faults and utilities is required for Type I and II facilities:
 - a. Wells. Map showing the locations of all known or recorded shot holes and seismic lines, private water wells, oil and/or gas wells, operating or abandoned, within the facility and within 2,000 feet of the facility perimeter and the locations of all public water systems, industrial water wells, and irrigation wells within one mile of the facility. A plan shall be provided to prevent adverse effects on the environment from the wells and shot holes located on the facility.

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There are three plugged and abandoned oil and/or gas wells within 2,000 feet of the perimeter. Figure 6 shows the location of these three wells in addition to any public water systems, industrial water wells, and irrigation wells within one mile of the facility. Table 1 lists the wells and other available data, such as well depth, completion data, aquifer name, present status and owner's name.

b. Faults

i. scaled map showing the locations of all recorded faults within the facility and within one mile of the perimeter of the facility; and

There are no known faults within the facility or within a one mile of the perimeter of the facility. A review of available published literature, including the 1984 Geologic Map of Louisiana (C.C. Groat, Director, Louisiana State Geological Survey), did not reveal data on faulting near the facility. Over 50 soil borings have been conducted at the facility and faults have not been noted within the facility. The Rodemacher Power Station is not located in an unstable area.

ii. demonstration, if applicable, of alternative fault set-back distance as provided in LAC 33:VII.709.A.5.

Not Applicable. There are no known faults within the facility or within a one mile of the perimeter of the facility.

c. Utilities. Scale map showing the location of all pipelines, power lines, and right-of-ways within the site.

A detailed map showing the location of all pipelines, power lines and right of ways within the property boundaries in included as Figure 2.

B. Facility Characteristics. Standards concerning facility characteristics are contained in LAC 33:VII.709.B (Type I and II facilities), LAC 33.VII.717.B (Type I-A and II-A facilities), and LAC 33:VII.719.B (Type III facilities). A facility plan, including drawings and a narrative, describing the information required below must be provided.

This application is for a Type I landfill and surface impoundment. Therefore, Cleco has addressed the standards concerning facility characteristics under LAC 33: VII.709.B within Section 5.0 of this application.

- 1. The following information is required for all facilities:
 - a. elements of the process or disposal system employed, including, as applicable, property lines, original contours (shown at not greater than five-foot intervals), buildings, units of the facility, drainage, ditches and roads;

See Figure 1 for a site location map and Figure 2 for a facility map. All operations occur within the property boundaries.

b. the perimeter barrier and other control measures;

Facility security is addressed within the Facility Operational Plan (Appendix E). As stated within that Plan, the proposed facility will be located within the RPS site. All visitors to the plant are required to check in at the front gate and must be escorted by company personnel at all times. In addition, unauthorized entry to the facility is minimized by perimeter features including fencing in open areas, and natural deterrents such as Lake Rodemacher and portions of heavily wooded areas.

c. a buffer zone;

The proposed facility will be located within the RPS and will be provided with a minimum 200-foot buffer zone to the fenced property line.

d. fire-protection measures;

Cleco has arranged for offsite assistance through the off-site Boyce Volunteer Fire Department.

Fire protection measures for the proposed facility and the entire RPS site are further addressed within the Facility Operational Plan (Appendix E) and the site Emergency Response Action Plan (ERAP) as provided in Appendix G of this application.

e. landscaping and other beautification efforts;

In accordance with LAC 33:VII.709.B.4 (Section 5.0), proposed facilities located within the boundaries of a plant, industry, or business that generates the waste to be processed or disposed of, is not required to provide landscaping. Cleco, though, will continue to provide all efforts to minimize adverse aesthetic impacts to the surrounding area.

f. devices or methods to determine, record, and monitor incoming waste;

Not Applicable. The proposed facility will only receive waste generated from the proposed, on-site Unit 3 solid fuel utility boiler. Internal recordkeeping procedures for the proposed facility are provided within the Facility Operational Plan (Appendix E).

The volume of reclaimed material will be determined by the sale of reclaimed material through the vendor, as well as the number of truck loads removed from the site.

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g. NPDES discharge points (existing and proposed); and

RPS is currently operating under LPDES permit number LA008036, which was submitted to LDEQ in April of 1996. An addendum has been sent to LDEQ to include anticipated changes in operations due to the installation of Solid Fuel Unit Number 3.

A detailed map of existing outfalls for the RPS has been included as Figure 7. Outfall R02 is used for intermittent discharge of coal sedimentation pond effluent. Outfall R03 is used for continuous discharge of OTCW (once-through cooling water) from Units 1, 2 and 3. R04 is used for combined intermittent discharge of bottom ash pond, fly ash pond, and secondary settling pond. R05 is used for intermittent discharge of petroleum coke and limestone stockpile storm water runoff. R06 is used for combined, intermittent discharge of effluent from chemical metal cleaning waste retention/settling pond effluent. R07 is used for combined, intermittent discharge of clarifier sludge sedimentation pond effluent, miscellaneous waste waters, and storm water. R08 is used for continuous discharge of low volume waste waters, including Units 1 and 2 boiler blowdown, and intermittent plant service water and wash water. R09 is used for combined, intermittent discharge of Units 1,2, and 3 low volume waste waters including floor drains, oil water separators, Unit 3 CFB boiler blowdown, and the water treatment plant waste waters. R10 is used for hydrostatic test waters from pipe/equipment, construction or repair prior to putting into service. R01 is used for intermittent overflow discharge at the impoundment spillway from the lake Rodemacher reservoir, including previously monitored and limited OTCW and effluents from R08 and R09 discharged through Internal Outfall R03 and the previously monitored and limited effluents.

Leachate from the landfill and other contact storm water associated with the landfill operations will be routed to the leachate pond prior to discharge through existing Outfall R04.

h. other features, as appropriate.

Additional features related to the operation of the proposed facility are discussed in response to the specific regulatory requirements provided herein.

2. The following information is required for Type I and II facilities:

a. areas for isolating nonputrescible waste or incinerator ash, and borrow areas; and

No areas will be isolated for nonputrescible waste and incinerator ash. There will also be no barrow areas other than those being excavated for cell construction. The Facility Operational Plan is provided in Appendix E of this application.

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Cleco will only dispose of ash resulting from the operation and maintenance of the on-site utility boilers. Neither waste generated by underground storage tank corrective action nor incinerator ash will be disposed in the landfill. Therefore, a comprehensive quality-assurance/quality-control plan and associated program addressing these items is not necessary.

b. location of leachate collection/treatment/removal system.

The landfill will include a leachate collection and removal system that complies with the minimum applicable standards of LAC 33:VII.711.B.4.b. Details and sections depicting the system are provided within this application as Figures 26 and 28. The design studies and supporting calculations, including HELP model results, for the potential leachate to be generated by the landfill and the capacity of the system and associated pond are provided within Appendix J of this application. As discussed within the Facility Operational Plan (Appendix E), the leachate generated within the landfill will not produce greater than a 12-inch head above the liner system (the liner system is discussed below in the response to LAC 33.VII.711.B.5). Calculation demonstrating compliance with this standard is provided in the design calculations included in Appendix J of this application.

Some specifics on the system are listed below.

- The system within each cell will consist of a network of collection pipes that drains to a lift station.
- The lift station will route the leachate to the Leachate Collection/Runoff Pond prior to discharge through LPDES Permitted Outfall R04.
- The collection lines will be a minimum 6-inch diameter HDPE pipe and sloped a minimum 1% towards the lift station.
- Stone surrounding the leachate collection pipes will be either crushed stone over a geotextile or rounded stone. The specific type used is dependent on material prices at the time of construction. The contractor may use either alternative.
- A non-woven geotextile will be placed at the sand/pipe bedding interface to reduce fines from entering the leachate collection bedding and piping.
- Cleanouts will be provided for each leachate line.
- The maximum flow path for leachate will be 80 feet, which is less than the 100 feet maximum standard of the Solid Waste Regulations.

Additional information is provided below.

- Daily and interim covers are not required because of the nature of the ash material being handled; an extended discussion of the characteristics of the ash material is provided within the Facility Operational Plan (Appendix E). The Closure/Post Closure Plan (Appendix I) provides for a final cover design.
- The leachate collection system is designed to provide maximum protection to the environment. Leachate collection and removal will be accomplished through positive gravity and pumping to direct the leachate to the Leachate Collection/Runoff Pond and ultimately discharged in compliance with an existing LPDES permit.
- All leachate will be routed to the leachate collection pond and ultimately discharged in compliance with an existing LPDES permit.
- The leachate collection and removal system will be located on a liner system that meets the standards of LAC 33:VII.711.B.5, as discussed in Section 6.0.
- Cleco will analyze samples of the leachate annually for the same parameters identified in the facility groundwater monitoring plan.
- C. Facility Surface Hydrology. Standards governing facility surface hydrology are contained in LAC 33:VII.711.A (Type I and II landfills), LAC 33:VII.713.A (Type I and II surface impoundments), LAC 33:VII.715.A (Type I and II landfarms), LAC 33:VII.717.C. (Type I-A and II-A facilities), and LAC 33:VII.719.C (Type III facilities).
 - 1. The following information regarding surface hydrology is required for all facilities:
 - a. a description of the method to be used to prevent surface drainage through the operating areas of the facility;

The methods to be used to prevent surface drainage through the operating areas of the proposed facility are provided in the responses to LAC 33:VII.711.A and 711.B.3 (Section 6.0 of this application), and in the responses to LAC 33:VII.713.A and 711.B.2 (Section 7.0 of this application). In summary:

• The proposed facility will be constructed within an area previously permitted through the Army Corps of Engineers (COE) under permit number LMNOD-SP dated March 29, 1977. The permit authorizes the installation and maintenance of a fill and levee ash containment system. This information was taken from a letter written to Shaw Environmental from the COE and is located in Appendix A. Cleco also previously received a solid waste permit from the LDEQ for this area for the construction of a surface impoundment to mange ash for future plant expansions.

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- As shown in Figure 3, a majority of the proposed ash management unit will be located within a 100-year flood plain (100 foot elevation); however the perimeter levee system was constructed with appropriate materials to a minimum elevation of 105 feet. The system is also provided with a vegetative cover to ensure the integrity of the facility during a 100-year flood event. Drawings relating to the levee system are provided in Figures 24 and 32.
- The landfill will be provided with a perimeter ditch system and levee system to prevent surface run-off from the operational areas of the unit during a 24-hour/25-year storm event as listed within the response to LAC 33:VII.521.C.1.c and provided in Section 3.0 of this application. The perimeter ditch system is shown in Figure 25. A typical cross section of the ditch is presented in Figure 32.

b. a description of the facility runoff/run-on collection system;

Information regarding drainage at the site is provided in Figures 25 and 32. Additional information is provided in the responses to the standards LAC 33:VII.711.A (Section 6.0) and LAC 33:VII.713.A (Section 7.0). In summary:

- The landfill will be provided with a perimeter ditch system and levee system to prevent surface run-off from the operational areas of the unit during a 24-hour/25-year storm event as listed within the response to LAC 33:VII.521.C.1.c and provided in Section 3.0 of this application.
- During operation and post-closure, runoff from inside the perimeter levee will be controlled independently. Storm water coming in contact with ash will be pumped to the lined leachate collection pond and treated before release through the LPDES outfall. Cross section of the landfill is provided as Figure 31.

c. the maximum rainfall from a 24-hour/25-year storm event;

The maximum rainfall from a 24 hour/ 25 year storm event is approximately 9 inches. This information was obtained from Rainfall Frequency/Magnitude Atlas for the South-Central United States, SRCC technical Report 97-1, Geosciences Publications Department of Geography and Anthropology Louisiana State University, Baton Rouge, LA.

d. the location of aquifer recharge areas in the site or within 1,000 feet of the site perimeter, along with a description of the measures planned to protect those areas from the adverse impact of operations at the facility; and

The entire RPS facility overlies a portion of the aquifer recharge area for both the Pleistocene Terrace aquifer of the central and north Louisiana and the Alluvial aquifer, as shown on Figure 34. The majority of the RPS is located on the aquifer



recharge area for the Terrace aquifer. The proposed ash management area will be situated on the aquifer recharge area for the Alluvial aquifer. The ash management area will be constructed adjacent to and within the existing levee system for a currently permitted solid waste facility (P-0005 Bottom Ash and Fly Ash Ponds) and will be designed to protect the aquifer recharge zone from any potential adverse impacts. The ash management area will be constructed with a leachate collection system. The design also contains a composite liner system meeting the standards of this chapter. Diagrams of landfill construction are located in Figures 24-33. In addition to the engineering design, the in place ash material will have very low permeability and will serve as an additional liner, further reducing the potential for environmental impacts from the facility. Permeability data from similar material is included in Appendix J.

e. if the facility is located in a flood plain, a plan to ensure that the facility does not restrict the flow of the 100-year base flood or significantly reduce the temporary water-storage capacity of the flood plain, and documentation indicating that the design of the facility is such that the flooding does not affect the integrity of the facility or result in the washout of solid waste.

The proposed facility will be constructed within an area previously permitted through the Army Corps of Engineers (COE) under permit number LMNOD-SP dated March 29, 1977. The permit authorizes the installation and maintenance of a fill and levee ash containment system. This information was taken from a letter written to Shaw Environmental from the COE and is located in Appendix A. Cleco also previously received a solid waste permit from the LDEQ for this area for the construction of a surface impoundment to mange ash for future plant expansions.

As shown in Figure 3, a majority of the proposed ash management unit will be located within a 100-year flood plain (100 foot elevation); however the perimeter levee system was constructed with appropriate materials to a minimum elevation of 105 feet. The system is also provided with a vegetative cover to ensure the integrity of the facility during a 100-year flood event. Drawings relating to the levee system are provided in Figures 24 and 32.

Storm water run-on to the proposed facility is prevented by the perimeter levee system for the proposed facility. There has been no indication that this system has had a negative impact on the temporary watershed capacity. The minimum berm elevation will be maintained at 105 feet to protect against the 100-year flood event (100 feet for the area). All run-on will be diverted away from the facility to existing drainage channels that drain to the Red River, Bayou Jean de Jean, or Lake Rodemacher. As the northwest portion of the area is constructed into the hillside, a perimeter ditch will be cut to divert any run-on from occurring in this area. These ditches will be diverted to existing discharge points.

- D. Facility Geology. Standards governing facility geology are contained in LAC 33:VII.709.C (Type I and II facilities), LAC 33:VII.717.D (Type I-A and II-A facilities), and LAC 33:VII.719.D (Type III facilities).
 - I. The following information regarding geology is required for Type I and Type II facilities:
 - a. isometric profile and cross-sections of soils, by type, thickness, and permeability;

Figure 8 is an isometric profile of the ash management area. The isometric profile has been constructed from 19 soil borings performed during the December 2004 geotechnical investigation (Appendix B). The soil borings range in depth from 40 to 100 feet below ground surface.

Figure 9 is a geologic cross-section location map. A total of ten geologic cross-sections, G-G' through P-P', of the soils underlying the ash management area and adjacent Bottom Ash and Fly Ash Ponds have been constructed utilizing soil boring data acquired in December 2004 and historical soil boring data.

Figures 10 through 13 are five geologic cross-section lines (G-G' H-H', I-I', J-J' and K-K') that transect the area from northeast to southwest. Figures 14 through 18 are five additional geologic cross-section lines (L-L', M-M', N-N', O-O', and P-P') that transect the area from northwest to southeast. Historical geologic cross-sections constructed for adjacent facilities are included in Appendix D.

Permeability of the soils underlying the ash management area is described in Appendix B, Section 3.3 and the Aquaterra Engineering Memorandum, dated May 25, 2005, also provided in Appendix B.

b. logs of all known soil borings taken on the facility and a description of the methods used to seal abandoned soil borings;

A map identifying all soil borings in the vicinity of the proposed ash management area is presented as Figure 19. It should be noted that boring logs for the most recently completed soil borings performed by Aquaterra (2004) and Eagle Environmental (2005) have been included in Appendices B and C, respectively. Soil boring logs were not available for field activities conducted by Sargent & Lundy (1981) or Altec Environmental Consultants, Inc. (2000); however, geologic cross-sections illustrating these borings are provided in lieu of the original soil boring logs (Appendix C).

Abandoned soil borings were sealed in accordance with accepted methods at the time of drilling, according to available records. Since May 1993, soil borings have been sealed in accordance with the "Construction of Geotechnical Boreholes and

Groundwater Monitoring Systems Handbook" dated May 1993 (LDEQ and LDOTD, 1993) and revised December 2000 (LDEQ and LDOTD, 2000).

c. results of tests for classifying soils (moisture contents, Atterberg limits, gradation, etc.), measuring soil strength, and determining the coefficients of permeability, and other applicable geotechnical tests;

Aquaterra Engineering performed a geotechnical investigation in support of this solid waste permit application in December, 2004. The report is included as Appendix B. The geotechnical investigation included a total of 19 borings drilled to depths ranging from 40 to 100 feet below ground surface. Three of those borings were drilled to 100 feet below ground surface. The borings were on a grid spacing of 450 feet. They were continuously sampled to a depth of 40 feet or total depth if less than 40 feet and were sampled on five-foot intervals below 40 feet in depth. The borings and geotechnical and laboratory test were conducted according to the requirements set forth in LAC 33:VII.709.C. Soil classification tests, such as determination of Atterberg limits, moisture content, grain size analysis and compression tests, were performed. All field data and laboratory data are presented on the soil boring logs presented in Appendix C, Aquaterra Engineering Geotechnical Investigation to Support Solid Waste Permitting.

d. geologic cross-section from available published information depicting the stratigraphy to a depth of at least 200 feet below the ground surface;

Figure 20 presents a fence diagram illustrating Rapides Parish geology to approximately 3,000 feet below ground surface. (Plate 4, Water Resources of Rapides Parish, Louisiana, Water Resources Bulletin No. 8, Department of Conservation, Louisiana Geological Survey, and Louisiana Department of Public Works, April 1966).

e. for faults mapped as existing through the facility, verification of their presence by geophysical mapping or stratigraphic correlation of boring logs. If the plane of the fault is verified within the facility's boundaries, a discussion of measures that will be taken to mitigate adverse effects on the facility and the environment;

There are no known faults within the facility or within one mile of the perimeter of the facility. The review of available published information did not reveal information on faulting near the facility. Over 50 soil borings have been conducted at the facility and faults have not been noted within the facility itself.

f. for a facility located in a seismic impact zone, a report with calculations demonstrating that the facility will be designed and operated so that it can withstand the stresses caused by the maximum ground motion, as provided in LAC 33:VII.709.C.2; and

There are no known faults within the facility or within a one mile of the perimeter of the facility. A review of available published literature, including the 1984 Geologic Map of Louisiana (C.C. Groat, Director, Louisiana State Geological Survey), did not reveal data on faulting near the facility. Over 50 soil borings have been conducted at the facility and faults have not been noted within the facility.

g. for a facility located in an unstable area, a demonstration of facility design as provided in LAC 33:VII.709.C.3.

Not Applicable. The RPS is not located in an unstable area.

2. The following information regarding geology is required by Type III wood waste, and construction/demolition-debris facilities:

Not Applicable. The application is for a Type I facility.

- a. general description of the soils provided by a qualified professional (a geotechnical engineer, soil scientist, or geologist) along with a description of the method used to determine soil characteristics; and
- b. logs of all known soil borings taken on the facility and a description of the methods used to seal abandoned soil borings.
- E. Facility Subsurface Hydrology. Standards governing facility subsurface hydrology are contained in LAC 33:VII.715.A (Type I and II landfarms).
 - l. The following information on subsurface hydrology is required for all Type I facilities and Type II landfills and surface impoundments:
 - a. delineation of the following information for the water table and all permeable zones from the ground surface to a depth of at least 30 feet below the base of excavation:
 - i. aerial extent beneath the facility;

The proposed facility located at the RPS will be located across two different geomorphologic features (Figure 1). These features consist of Intermediate Terrace deposits of Pleistocene age to the northwest and alluvium and natural levee deposits of Holocene age to the southeast. The Intermediate Terraces are composed of terraces formerly designated as Montgomery, Irene, and Bentley (LGS, 1984; Eagle, 2005). The proposed ash management area is to be constructed across the boundary of the Intermediate Terrace and alluvium/natural levee deposits adjacent to the southwest side of the existing Bottom Ash and Fly Ash Ponds (Figure 24).

Due to the fact that the northwestern most portion of the ash management area is located on the Intermediate Terrace deposits and the remainder of the proposed facility is located on the alluvium/natural levee deposits, the uppermost aquifer is actually comprised of two different aquifers that are hydrologically connected. The isometric profile (Figure 8) provides a comprehensive look at the stratigraphy in the ash management area from the geotechnical soil boring data collected in December 2004 (Aquaterra Engineering, Inc., 2004). The geologic cross-sections (Figures 10-18) combine both the geotechnical soil boring data and older soil boring data acquired during previous investigations. Figure 19 provides a map of the of the soil boring locations. The soil boring logs are presented in Appendices B and C.

The isometric soil profile and the ten geologic cross-sections illustrate the difference in stratigraphy and depth to the uppermost water bearing zone for both the Intermediate Terrace deposits and the alluvium/natural levee deposits. Most easily seen on the isometric profile (Figure 8), soil borings B-4, B-5, and B-6 are representative of the Intermediate Terrace deposits and soil borings B-7 through B-22 are representative of the alluvium/natural levee deposits. The uppermost aquifer within the Intermediate Terrace deposits consists of fine-sand in upper parts, grading downward to coarse sand and gravel. The uppermost aquifer within the alluvium/natural levee deposits is described as sandy silt to silty sand often underlain by sandy clay.

The isometric profile and geologic cross-sections also show the connection between the Terrace and alluvial aquifers, indicating that the uppermost aquifer, while comprised of sediments of two different geologic ages, is laterally continuous across the site.

ii. thickness and depth of the permeable zones and fluctuations;

The thickness of the uppermost aquifer in the vicinity of the proposed facility ranges from up to 62 feet thick (boring B-4) in the northwestern portion of the site to 11 feet thick (boring B-10) in the central portion, to 44 feet thick (boring B-21) in the southern portion of the site (Figure 8). As previously stated, the northwestern portion of the ash management area is located on the Intermediate Terrace deposits, with the remainder of the ash management area and leachate collection pond located on alluvium/natural levee deposits. Therefore, the depth to the top of the uppermost aquifer is as shallow as two to three feet below the land surface across the Intermediate Terrace deposits. The uppermost aquifer is deeper across the alluvium/natural levee deposits and is found from 15 to 30 feet below land surface.

iii. direction(s) and rate(s) of groundwater flow based on information obtained from piezometers and shown on potentiometric maps; and

Groundwater flow at the RPS has been evaluated most recently by Eagle Environmental, Inc. (2005). Other historical potentiometric maps have been prepared by M.S. Environmental Consultants (July, 2004 and earlier) and are presented in Appendix D.

Eagle (2005) evaluated the horizontal groundwater flow in the uppermost aquifer by construction of potentiometric surface maps from data obtained from monitoring wells at the facility (Figures 22 and 23). Eagle's evaluation concludes that horizontal groundwater flow at the facility is consistently towards local surface water bodies with flow towards Lake Rodemacher in the power station portion of the property and toward Bayou Jean de Jean in the area of the proposed ash management area and the existing Fly Ash and Bottom Ash Ponds. Based on USGS topographic quadrangles of the Lake Rodemacher area, the spillway elevation of Lake Rodemacher is 100 Feet NGVD. Groundwater elevations determined in monitoring wells in the power station portion of the property and near the lake are generally higher than this maximum lake elevation; thereby, supporting groundwater flow toward the lake. potentiometric maps indicate horizontal groundwater flow in the ash management area exhibits seasonal flow to the southeast and southwest toward Bayou Jean de Jean.

Eagle (2005) evaluated the groundwater flow rate using the groundwater flow equation, $v = \{k (dh/dl)\} / n_e$. For this equation, v is groundwater flow velocity in ft/day, k is hydraulic conductivity in ft/day, dh/dl is hydraulic gradient in ft/ft, and n_e is effective porosity (unitless).

Eagle (2005) assumed a hydraulic conductivity value (k) ranging from 10 to 100 ft/day based on the silty sand and fine- to coarse-grained sand (Heath, 1989) observed in soil borings completed at the site. A hydraulic gradient value (dh/dl) ranging from 0.0004 to 0.007 ft/ft was used based on available potentiometric surface maps. Eagle noted that the hydraulic gradient is steeper in the area of the proposed Ash Management Area and the existing Bed Ash and Fly Ash Ponds, which includes both Intermediate Terrace and alluvium and natural levee deposits, and flatter in the power station portion of the site that is located on the Intermediate Terrace deposits. An effective porosity (n_e) of 0.02 was assumed based on the soil types of the uppermost aquifer (Fetter, 2001). Using these input values, Eagle (2005) estimated the groundwater flow rate (v) to range form 0.02 to 3.5 feet/day.

Eagle (2005) noted that this is an advective groundwater flow rate and does not take into account potential hydrogeological heterogeneities such as adsorption, biodegradation, dispersion, or other retarding factors present within the groundwater flow regime. Variations in the advective flow may also occur due to potential lateral geological heterogeneities.



iv. any change in groundwater flow direction anticipated to result from any facility activities;

Historical potentiometric maps for the RPS are included in Appendix D. No changes in groundwater flow direction have been noted from the existing permitted Bottom Ash and Fly Ash Ponds, which are located adjacent to the area for the proposed facility. Changes in groundwater flow direction are not anticipated with the building of the proposed ash management area and leachate collection pond.

b. delineation of the following, from all available information, for all recognized aquifers which have their upper surfaces within 200 feet of the ground surface:

i. areal extent;

Groundwater occurs in three major geohydrologic units in the vicinity of the RPS. From shallow to deep, these regional units include the Red River valley alluvium, the upland sand and gravel Terrace deposits of Pleistocene age; and sand beds in Miocene-age rocks.

The southeastern most part of the site is immediately underlain by the Red River alluvial aquifer. It is comprised of floodplain deposits of the Red River that consist of sand, silt and clay with some gravel. Northwest of the Red River floodplain are topographically higher, older Pleistocene sand and gravel deposits. The upland deposits are mainly composed of fine to coarse sands with an overlying silty clay layer in most localities.

The upland Pleistocene deposits (Intermediate Terrace Aquifer) cover the Miocene rocks with a mantle that varies in thickness from less than 100 feet in the northern part of the parish to 200 feet in the southern part of the parish (Newcome and Sloss, 1966).

In the vicinity of the RPS, the upland Pleistocene deposits are underlain by Miocene age rocks consisting of the Carnahan Bayou Member of the Fleming Formation. The Carnahan Bayou Member is generally sandy and dips southward at 75 to 150 feet per mile, as shown in a generalized fence diagram for Rapides Parish in Figure 21 (Newcome and Sloss, 1966, Water Resources of Rapides Parish, Louisiana, Water Resources Bulletin No. 8, Department of Conservation, Louisiana Geological Survey and Louisiana Department of Public Works). A stratigraphic column provides the relationship between geologic formations in Rapides Parish and is shown in Figure 22.

Individual sand beds commonly exist at the base of the sand members in the Miocene rocks. Sand beds are the major aquifers in the Miocene rocks. The sand beds range in thickness from 10 to 230 feet, with an average thickness of approximately 40 feet.

ii. thickness and depth to the upper surface;

According to available literature, the Red River alluvium/alluvial aquifer, in the vicinity of the town of Boyce, Louisiana, can be present from ground surface to depths of 50 to 75 feet below ground surface.

The town of Boyce drilled water well test R-767 and encountered the Miocene age Carnahan Bayou Member of the Fleming Formation at a depth of 262 feet

below ground surface (Newcome and Sloss, 1966). In that well, the Carnahan Bayou Member was 31 feet thick.

iii. any interconnection of aquifers; and

Hydrologically, the groundwater in the vicinity of the Rodemacher Power Station is most likely connected to the Red River and Bayou Jean de Jean at shallow depths. There is no evidence, however, to hydrologically connect this shallow aquifer to the much deeper Miocene formation used as a source of drinking water in the vicinity.

iv. direction(s) and rate(s) of groundwater flow shown on potentiometric maps.

According to available published literature, the regional direction of groundwater flow in the Miocene aquifers underlying Rapides Parish is historically east-southeast. Newcome and Sloss, 1966, presented a figure illustrating municipal pumping of groundwater near Alexandria and Lecompte (Appendix D of this application). Based on this data, groundwater flow has been changed toward the pumping centers.

Miocene sands permeability ranges from 90 to 1,000 gallons per day per square foot (Newcome and Sloss, 1966).

- 2. The following information on subsurface hydrology is required for Type II Landfarms. Delineation of the following information for the water table and all permeable zones from the ground surface to a depth of at least 30 feet below the zone of incorporation:
 - a. areal extent beneath the facility;
 - b. thickness and depth of the permeable zones and fluctuations;
 - c. direction(s) and rate (s) of groundwater flow based on information obtained from piezometers and shown on potentiometric maps); and
 - d. any change in groundwater flow direction anticipated to result from any facilities activities.

Not Applicable. The application is for a Type I facility, not a Type II landfarm.

- F. Facility Plans and Specifications. Standards governing facility plans and specifications are contained in LAC 33:VII.711.B (Type I and II landfills), LAC 33:VII.713.B (Type I and II surface impoundments), LAC 33:VII.715.B (Type I and II landfarms), LAC 33:717.E (Type I-A and II-A facilities), LAC 33:VII.721.A (Type III construction and demolition debris and woodwaste landfills), LAC 33:VII.723.A (Type III composting facilities), and LAC 33:VII.725.A (Type III separation facilities). Standards for groundwater monitoring are contained in LAC 33:VII.709.E (Type I and II facilities).
- 1. Certification. The person who prepared the permit application must provide the following certification:

"I certify under penalty of law that I have personally examined and I am familiar with the information submitted in this permit application and that the facility as described in this permit application meets the requirements of the solid waste rules and regulations. I am aware that there are significant penalties for knowingly submitting false information, including the possibility of fine and imprisonment."

A certification, in accordance with 33.VII 521.F.1, is provided at the beginning of this permit application.

- 2. The following information on plans and specifications is required for Type I and II facilities:
 - a. detailed plan-view drawing(s) showing original contours, proposed elevations of the base of units prior to installation of the liner system, and boring locations;

Drawings, sections and details of the proposed facility are provided as Figures 24 through 33 in this application. The proposed elevation of the base of the ash management area excavation is shown on the geologic cross-sections (Figures 10 through 18). Boring locations are shown in Figure 19.

b. detailed drawings of slopes, levees, and other pertinent features; and

Drawings, sections, and details of the slopes, levees, and other pertinent features of the proposed facility are provided in Figures 24 through 33. An additional level of detail will be completed with the construction bid drawings for the individual cells, which will be constructed on a modular basis. For presentation purposes, the first cell design is included. More detailed drawings and specifications will be prepared prior to construction of each cell or module.



c. the type of material and its source for levee construction. Calculations shall be submitted demonstrating that an adequate volume of material is available for the required levee construction.

The proposed Type I facility will be constructed within the existing footprint of the perimeter levee system that was constructed in the early 1980s as permitted by the Army Corps of Engineers (COE) in 1977; a copy of the COE permit is included in this application in Appendix A. Earthwork quantity calculations were prepared with direct area measurements from a digital planimeter or from the electronic version of the drawings, utilizing area/depth methods.

Original site construction activities were completed in the early to mid 1980s. At that time, in addition to construction of the northeastern ash management area and the existing leachate pond, the dikes (perimeter berms) were built for the area currently considered for location of the proposed facility. As such, no earth quantities have been estimated for this item.

As shown in Figure 3, a majority of the proposed ash management unit will be located within a 100-year flood plain, which is approximately 100 feet for the area; the perimeter levee system was constructed with appropriate materials to a minimum elevation of 105 feet. The system is also provided with a vegetative cover to ensure the integrity of the facility during a 100-year flood event. Drawings relating to the levee system are provided in Figures 24 and 32.

- 3. The following information on plans and specifications is required for Type I, II, and III landfills:
 - a. approximate dimensions of daily fill and cover; and

Not Applicable. No daily cover is necessary as the material will be partially hydrated prior to transport to the Ash Management Area with an additional application of water after the ash is placed within the landfill. The characteristics of the ash will undergo a distinct change in chemical and physical characteristics when mixed with water. Fly ash is a pozzolanic material, that is, its silicon oxide and aluminum oxide components react with its calcium fraction in the presence of water to form slow hardening cement. The result of this reaction produces a hard, structurally stable compound with very low permeability.

In addition, the inert, solid waste ash to be stored within the landfill is a non-combustible, granular material that does not have the potential to generate litter or noxious odors. The design of the landfill allows for the safe operation and utilization by facility personnel and provides an effective method to handle the excess solid waste ash generated on-site in a unit conducive to an industrial setting.



b. the type of cover material and its source for daily, interim, and final cover. Calculations shall be submitted demonstrating that an adequate volume of material is available for daily, interim, and final cover.

As discussed in the response above to LAC 33:VII.521.F.3.a and in the response to LAC 33:VII.711.B.2 (Section 6.0), neither a daily cover nor an interim cover are required on the landfill due to the type of material to be stored within the facility.

The source and type of material to be utilized for the final cover is addressed in the Closure/Post-Closure Plan (Appendix I), which was developed in accordance with the requirements of LAC 33:VII.711.E (Section 6.0) and LAC 33:VII.713.E (Section 7.0). The calculations demonstrating that an adequate volume of material is available for the final cover is also provided in the Closure/Post-Closure Plan (Appendix I).

- 4. The following information on plans and specifications for the prevention of groundwater contamination must be submitted for Type I and II facilities:
 - a. representative cross-sections and geologic cross-sections showing original and final grades, approximate dimensions of daily fill and cover, drainage, the water table, groundwater conditions, the location and type of liner, and other pertinent information;

Cross sections of the subsurface conditions are shown in Figures 10 - 18. As stated previously, a daily cover is not necessary because of the material being handled.

b. a description of the liner system, which shall include: calculations of anticipated leachate volumes, rationale for particular designs of such systems, and drawings; and

Drawings, sections, and details of the facility, including the liner system, designed in accordance with LAC 33:VII.711.B.5 (Section 6.0) and LAC 33:VII.713.B.3 (Section 7.0) are provided in Figures 24 through 33. The study and associated calculations of the anticipated leachate volume utilized in the design of the liner system for the landfill and associated leachate collection pond is provided in Appendix J.

The liner system will consist of 36-inch compacted clay layer overlain by a 60-mil HDPE geomembrane liner. The clay will have a maximum hydraulic conductivity of 1.0 x 10⁻⁷ cm/sec. The geomembrane liner will be overlain with a top layer composed of 12-inches of sand. The slope of the liner will be a minimum 2% toward the leachate collection pipes – details of the leachate collection and removal system to be installed over the liner system are provided in the response above to LAC 33:VII.711.B.4.



The area for the proposed landfill has material suitable for the clay layer of the liner system. The material in the borrow area consists of sandy clay (CL-SC), clayey sand (SC), silty fine sand (SM), and clay (CH). Construction of the 3-foot clay layer will be performed in accordance with the Liner Quality Assurance/Quality Control Plan. Prior to construction, clay samples will be taken by Shelby tube sampling for each of the soil units, then recompacted to develop optimum moisture curves for compacted and recompacted permeabilities. Specifics of the construction process include the following:

- Excavation of the on-site clay;
- Grading the subsurface to the slopes/elevations indicated on the construction drawings, and then recompacted in place in 6-inch to 8-inch lifts; and
- Density testing will be performed on each lift.

Cleco performed an extensive geotechnical investigation of the proposal landfill area. The results of this investigation are presented in Appendix B of this application. In addition, settlement calculations for the proposed facility are included in this application in Appendix J.

Results of the settlement calculations indicate that under the plateau area of the proposed facility there may be a maximum settlement of 50 inches. However, recent geotechnical borings did not identify any extensive areas of unsatisfactory subsurface conditions where differential settlement will occur. The transition between the exterior perimeter of the landfill area of the proposed facility and the plateau increases the depth of ash loading at a uniform rate to the toe of the liner and then from the liner toe to the plateau. The horizontal difference in this transition area is typically 400 feet. The side settlement slope is therefore estimated to change 0.6 degrees, or an increased length of less than 0.3 inches. Given the industry provided estimate of 20% elongation at yield and >500% at failure, the estimated elongation of the liner in this area is 6-thousands of 1%, which is well within the industry standard yield (or failure) in tensile testing. In addition, the clay liner will contort similarly with a cross sectional area reduction of two thousands of a percent, providing an immeasurable difference.

The landfill will be lined along the bottom and sides with a liner system consisting of the following:

- Leachate Collection System designed and constructed in accordance with LAC 33:VII.711.B.4; and a
- Composite Liner compatible with the solid waste and associated leachate within the unit that consists of a high-density polyethylene geomembrane liner at least 60-mil thick installed directly above and in uniform contact with a

three-foot recompacted clay liner having a hydraulic conductivity of no greater than 1 x 10⁻⁷ cm/sec.

The liner system will be installed under the supervision of a registered engineer, licensed in the state of Louisiana and with the appropriate expertise. Details and cross-sections of the proposed liner system are provided in Figures 27 - 29.

Cleco is not requesting an alternative liner system under LAC 33:VII.711.B.5.d.iii.

c. a description of the leachate collection and removal system, which shall include calculations of anticipated leachate volumes, rationale for particular designs of such systems, and drawings.

Drawings, sections, and details of the facility, including the leachate collection and removal system, designed in accordance with LAC 33:VII.711.B.4 (Section 6.0), are provided in Figures 24 through 33. The study and associated calculations of the anticipated leachate volume utilized in the design of the leachate collection and removal system is provided in Appendix J.

The landfill will include a leachate collection and removal system that complies with the minimum applicable standards of LAC 33:VII.711.B.4.b. Details and sections depicting the system are provided within this application as Figures 26 and 28. The design studies and supporting calculations, including HELP model results, for the potential leachate to be generated by the landfill and the capacity of the system and associated pond are provided within Appendix J of this application. As discussed within the Facility Operational Plan (Appendix E), the leachate generated within the landfill will not produce greater than a 12-inch head above the liner system (the liner system is discussed above in the response to LAC 33.VII.521.F.4.b). Calculation demonstrating compliance with this standard is provided in the design calculations included in Appendix J of this application.

Some specifics on the system are listed below.

- The system within each cell will consist of a network of collection pipes that drains to a lift station.
- The lift station will route the leachate to the Leachate Collection/Runoff Pond prior to discharge through LPDES Permit R04.
- The collection lines will be a minimum 6-inch diameter HDPE pipe sloped a minimum 1% towards the lift station.
- Stone surrounding the leachate collection pipes will be either crushed stone over a geotextile or rounded stone. The specific type used is dependent on material prices at the time of construction. The contractor may use either alternative.



- A non-woven geotextile will be placed at the sand/pipe bedding interface to reduce fines from entering the leachate collection bedding and piping.
- Cleanouts will be provided for each leachate line.
- The maximum flow path for leachate will be 80 feet, which is less than the 100 feet maximum standard of the Solid Waste Regulations.

The leachate collection system is designed to provide maximum protection to the environment. Leachate collection and removal will be accomplished through positive gravity and pumping to direct the leachate to the Leachate Collection/Runoff Pond and ultimately discharged in compliance with an existing LPDES permit.

5. The following information on plans and specifications for groundwater monitoring must be provided for Type I and II facilities:

The groundwater monitoring program was developed in accordance with LAC 33:VII.709.E (Section 5.0). The detailed *Groundwater Sampling and Analysis Plan* is included as Appendix F.

a. a minimum of three piezometers or monitoring wells in the same zone must be provided in order to determine groundwater flow direction;

The groundwater monitoring system will consist of 12 monitoring wells that will surround the Ash Management Area and adjacent solid waste facilities. The wells are for the intended purpose of monitoring the uppermost aquifer. Monitoring wells W-2 and W-22 are upgradient wells that have not been affected by leakage from the units and, therefore, represent the quality of background groundwater. Please refer to the Groundwater Sampling and Analysis Plan and Exhibit 1 of that document presented in Appendix F.

b. for groundwater monitoring wells, cross-sections illustrating construction of wells, a scaled map indicating well locations and the relevant point of compliance, and pertinent data on each well, presented in tabular form, including drilled depth, the depth to which the well is cased, screen interval, slot size, elevations of the top and bottom of the screen, casing size, type of grout, ground surface elevation, etc.;

Appendix F contains a comprehensive Groundwater Sampling and Analysis Plan. This document includes a monitoring well location map, presented as Figure 19.

c. a groundwater monitoring program including a sampling and analysis plan that includes consistent sampling and analysis procedures that ensure that monitoring results provide reliable indications of groundwater quality;

Appendix F contains a comprehensive Groundwater Sampling and Analysis Plan for the RPS site, which addresses the information required in LAC 33:VII.709.E.1. Cleco intends to utilize a single system for monitoring the ash management unit and leachate collection pond, along with the existing ash management facilities at the RPS.

d. for an existing facility, all data on samples taken from monitoring wells in place at the time of the permit application must be included. (If this data exists in the department records, the administrative authority may allow references to the data in the permit application.) For an existing facility with no wells, groundwater data shall be submitted within 90 days after the installation of monitoring wells. For a new facility, groundwater data (one sampling event) shall be submitted before waste is accepted;

Appendix F contains a comprehensive Groundwater Sampling and Analysis Plan for the RPS site, which addresses the information required in LAC 33:VII.709.E.1. Cleco intends to utilize a single system for monitoring the ash management unit and leachate collection pond, along with the existing ash management facilities at the RPS.

Groundwater data (one sampling event) will be submitted before waste is accepted at the facility.

e. a plan for detecting, reporting, and verifying changes in groundwater; and

Appendix F contains a comprehensive Groundwater Sampling and Analysis Plan for the RPS site, which addresses the information required in LAC 33:VII.709.E.1. Cleco intends to utilize a single system for monitoring the ash management unit and leachate collection pond, along with the existing ash management facilities at the RPS.

f. the method for plugging and abandonment of groundwater monitoring systems.

Cleco will comply with all of the necessary well plugging and abandonment requirements. All wells, piezometers, and soil borings will be plugged and abandoned in accordance with LAC 70:XIII and the Construction of Geotechnical Boreholes and Groundwater Monitoring Systems Handbook, prepared by the Louisiana Department of Environmental Quality and Louisiana Department of Transportation and Development, December 2000.

6. The facility plans and specifications for Type I and II landfills and surface impoundments (surface impoundments with on-site closure and a potential to produce gases) must provide a gas collection and treatment or removal system.

Not Applicable. A gas collection and treatment system is not necessary as this facility will accept only ash for disposal, and therefore, it will not have the potential to produce gas.

- G. Facility Administrative Procedures. Standards governing facility administrative procedures are contained in LAC 33:VII.711.C (Type I and II landfills), LAC 33:VII.713.C (Type I and II surface impoundments), LAC 33:VII.715.C (Type I and II landfarms), LAC 33:VII.717.F (Type I-A and II-A facilities), LAC 33:VII.721.B (Type III construction and demolition debris and woodwaste landfills), LAC 33:VII.723.B (Type III composting facilities), and LAC 33:VII.725.B (Type III separation facilities).
 - l. The following information on administrative procedures is required for all facilities:
 - a. recordkeeping system; types of records to be kept; and the use of records by management to control operations;

Cleco will maintain at RPS all records specified in the Solid Waste Permit Application as necessary for the effective management of the facility and for preparing the required reports including, but not limited to, those listed in LAC 33:VII.711.C.1.b.iii. These records will be maintained for the life of the facility and will be kept on file for at least three years after closure. Records of transporters transporting waste for processing or disposal at the facility under LAC 33:VII.711.C.1.b.ii will not be required as the landfill will not accept waste generated off-site.

Additional records to be maintained at the RPS for the facility, in accordance with LAC 33:VII.71.C.1.b.iii, include those listed below.

- Copy of the current Louisiana Solid Waste Rules & Regulations
- Facility Solid Waste Permit
- Solid Waste Permit Application (including any potential Permit Modifications)
- Certified Field Construction Notes
- Training Program



Documentation that liners, leachate-control systems, and leak-detection and cover systems are constructed or installed in accordance with appropriate quality assurance procedures

- Operating Logs (Weekly Inspections)
- Quality Assurance/Quality Control (QA/QC) records (as applicable)
- Volume of Material Reclaimed
- Groundwater Monitoring Reports
- Leachate volume and results of the leachate sampling
- Monitoring, testing, or analytical data (LPDES permit activities)
- Copies of documents submitted to or received from LDEQ
- Other data subsequently required by the Administrative Authority

Facility administrative procedures for the recordkeeping system, including the types of records to be kept, are discussed further within the Facility Operational Plan (Appendix E).

b. an estimate of the minimum personnel, listed by general job classification, required to operate the facility; and

Key personnel who will be involved in the operation of the landfill and surface impoundment are the supervisor and the operator.

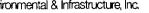
Further discussion of the duties of the key personnel are provided in the Facility Operational Plan (Appendix E).

c. maximum days of operation per week and per facility operating day (maximum hours of operation within a 24-hour period).

The proposed onsite landfill will be operated during daylight hours.

2. Administrative procedures for Type II facilities shall include the number of facility operators certified by the Louisiana Solid Waste Operator Certification and Training Program (R.S. 37:3151 et seq.).

Not Applicable. This application is for a Type I facility.



H. Facility Operational Plans. Standards governing facility operational plans are contained in LAC 33:VII.711.D (Type I and II landfills), LAC 33:VII.713.D (Type I and II surface impoundments), LAC 33:VII.715.D (Type I and II landfarms), LAC 33:VII.717.G (Type I-A and II-A facilities), LAC 33:VII.721.C (Type III construction and demolition debris and woodwaste landfills), LAC 33:VII.723.C (Type III composting facilities), and LAC 33:VII.725.C (Type III separation facilities).

The Facility Operational Plan for the proposed facility is provided as Appendix E of this application and addresses the requirements of LAC 33:VII.521.H, LAC 33:VII.711.D (Section 6.0) and LAC 33:VII.713.D (Section 7.0). Explanations for specific requirements that are not applicable to the Operational Plan for the proposed facility are provided below.

- The following information on operational plans is required for all facilities:
 - a. types of waste (including chemical, physical, and biological characteristics of industrial wastes generated on-site), maximum quantities of wastes per year, and sources of waste to be processed or disposed of at the facility;
 - b. waste-handling procedures from entry to final disposition, which could include shipment of recovered materials to a user;
 - c. minimum equipment to be furnished at the facility;
 - d. plan to segregate wastes, if applicable;

Not applicable. The proposed onsite landfill will only handle ash generated from the operation and maintenance of the utility boilers.

- e. procedures planned in case of breakdowns, inclement weather, and other abnormal conditions (including detailed plans for wet-weather access and operations);
- f. procedures, equipment, and contingency plans for protecting employees and the general public from accidents, fires, explosions, etc., and provisions for emergency care should an accident occur (including proximity to a hospital, fire and emergency services, and training programs); and
- g. provisions for controlling vectors, dust, litter, and odors.

Not Applicable. The method of transportation, placement, and physical nature of the solid waste to be disposed of in the landfill will minimize the potential to become airborne as dust or trash requiring litter control. The characteristics of the waste will not attract vectors, and will not require routine inspections of the proposed facility for potential odors. In the event that odors are present, various methods are available to control or eliminate them.

- 2. The following information on operational plans is required for Type I and II facilities:
 - a. a comprehensive operational plan describing the total operation, including (but not limited to) inspection of incoming waste to ensure that only permitted wastes are accepted (Type II landfills must provide a plan for random inspection of incoming waste loads to ensure that hazardous wastes or regulated PCB wastes are not disposed of in the facility.); traffic control; support facilities; equipment operation; personnel involvement; and day-today activities. A quality-assurance/quality-control [QA/QC] plan shall be provided for facilities receiving industrial waste; domestic-sewage sludge; incinerator ash; friable asbestos; nonhazardous petroleum-contaminated media; and debris generated from underground storage tanks [UST], corrective action, or other special wastes as determined by the administrative authority. The QA/QC plan shall include (but shall not be limited to) the necessary methodologies; analytical personnel; preacceptance and delivery restrictions; and appropriate responsibilities of the generator, transporter, processor, and disposer. The QA/QC plan shall ensure that only permitted, nonhazardous wastes are accepted;

Not Applicable. The proposed facility will not receive waste from offsite.

b. salvaging procedures and control, if applicable; and

Not Applicable. Material will not be salvaged from the ash management area. The ash material will be recovered for marketing.

c. scavenging control.

Not Applicable. Access to the RPS is restricted; scavenging will not be conducted or allowed by facility personnel or off-site personnel granted entry into the RPS.

- 3. The following information on operational plans is required for Type I and II landfarms:
 - a. items to be submitted regardless of land use:
 - i. a detailed analysis of waste, including (but not limited to) pH, phosphorus, nitrogen, potassium, sodium, calcium, magnesium, sodium-adsorption ratio, and total metals (as listed in LAC 33:VII.715.D.3.b);
 - ii. soil classification, cation-exchange capacity, organic matter, content in soil, soil pH, nitrogen, phosphorus, metals (as listed in LAC 33:VII.715.D.3.b), salts, sodium, calcium, magnesium, sodium-adsorption ratio, and PCB concentrations of the treatment zone;

- iii. annual application rate (dry tons per acre) and weekly hydraulic loading (inches per acre); and
- iv. an evaluation of the potential for nitrogen to enter the groundwater;
- b. items to be submitted in order for landfarms to be used for food-chain cropland:
 - i. a description of the pathogen-reduction method for septage, domestic sewage sludges, and other sludges subject to pathogen production;
 - ii. crops to be grown and the dates for planting;
 - iii. PCB concentrations in waste;
 - iv. annual application rates of cadmium and PCBs; and
 - v. cumulative applications of cadmium and PCBs;
- c. items to be submitted for landfarms to be used for nonfood-chain purposes:
 - i. description of the pathogen-reduction method in septage, domestic sewage sludges, and other sludges subject to pathogen production; and
 - ii. description of control of public and livestock access.

Not Applicable. This application is for a Type I landfill and associated leachate pond. Cleco is not proposing to operate a landfarm as part of this application.

- 4. The following information on operational plans is required for Type I-A and II-A incinerator waste-handling facilities and refuse-derived energy facilities:
 - a description of the method used to handle process waters and other water discharges which are subject to NPDES permit and state water discharge permit requirements and regulations; and
 - b. a plan for the disposal and periodic testing of ash (all ash and residue must be disposed of in a permitted facility).

Not Applicable. This application is for a Type I landfill and associated leachate pond. Cleco is not proposing to operate a Type I-A or II-A facility as part of this application.

- 5. The following information on operational plans is required for Type I-A and II-A refuse-derived fuel facilities and Type III separation and composting facilities:
 - a. a description of the testing to be performed on the fuel or compost; and

b. a description of the uses for and the types of fuel/compost to be produced.

Not Applicable. This application is for a Type I facility.

6. The operational plans for Type I-A and II-A refuse-derived fuel facilities and Type III separation and composting facilities must include a description of marketing procedures and control.

Not Applicable. This application is for a Type I facility.

7. The operational plans for Type I and II facilities receiving waste with a potential to produce gases must include a comprehensive air monitoring plan.

Not applicable. The facility will not receive wastes with potential to produce gases.

- I. Implementation Plan. Standards governing implementation plans are contained in LAC 33:VII.709.D (Type I and II facilities), LAC 33:VII.717.H (Type I-A and II-A facilities), and LAC 33:VII.719.E (Type III facilities).
 - 1. The implementation plans for all facilities must include the following:
 - a. a construction schedule for existing facilities which shall include beginning and ending time-frames and time-frames for the installation of all major features such as monitoring wells and liners. (Time-frames must be specified in days, with day one being the date of standard permit issuance); and

Not Applicable. This application is a proposed facility, not for an existing facility. Also the implementation will not include a plan for closing and upgrading existing operation areas (LAC 33: VII.521.I.2) as this application is not for the expansion of a facility or construction of a replacement facility.

b. details on phased implementation if any proposed facility is to be constructed in phases.

The Implementation Plan for the construction of the proposed ash management area is included in this application as Appendix H.

2. The implementation plans for Type I and II facilities must include a plan for closing and upgrading existing operating areas if the application is for expansion of a facility or construction of a replacement facility.

Not Applicable. This application is a proposed facility, not for the expansion of an existing facility or construction of a replacement facility.

J. Facility Closure. Standards governing facility closure are contained in LAC 33:VII.711.E (Type I and II landfills), LAC 33:VII.713.E (Type I and II surface impoundments), LAC 33:VII.715.E (Type I and II landfarms), LAC 33:VII.717.I (Type I-A and II-A facilities), LAC 33:VII.721.D (construction and demolition debris and woodwaste landfills), LAC 33:VII.723.D (Type III composting facilities), and LAC 33:VII.725.D (Type III separation facilities).

The Facility Closure/Post-Closure Plan for the proposed facility is provided as Appendix I of this application and addresses the requirements of LAC 33:VII.521.J, LAC 33:VII.711.E (Section 6.0) and LAC 33:VII.713.E (Section 7.0).

- 1. The closure plan for all facilities must include the following:
 - a. the date of final closure;

The facility is anticipated to be closed no sooner than 2040.

b. the method to be used and steps necessary for closing the facility; and

Cleco will conduct the pre-closure activities as identified below prior to placing the final cover (cap) on the landfill.

Notification of Intent to Close:

Cleco will submit a written Notification of Intent to Close to the LDEQ Office of Environmental Services, Permits Division at least 90 days before closure, or intent to close, seal, or abandon any individual units within the landfill portion of the Ash Management Area. The notification will include:

- o Date of planned closure;
- o Changes, if any, requested in the approved closure plan; and
- o Closure schedule and estimated cost.

Dewatering:

Standing water within the area designated for closure will be solidified or removed. As stated previously, the nature of the ash stored is to form a cement-type material when wet; therefore, it is anticipated that a minimal amount of standing water will be observed for long periods within the landfill area during the life of the facility.

• Runoff-Diversion System:

The runoff-diversion system for the landfill will be maintained during closure until the final cover is installed, and as required to handle any leachate generated within the landfill during post-closure. The leachate collection/run-off pond (surface impoundment) handles leachate generated within the landfill and run-off from the surface of the unit. As required

under LAC 33:VII.711.F.3.b, the pond will remain in operation during the closure of the landfill portion of the facility, and will be utilized until leachate is no longer generated or until Cleco can demonstrate that the leachate no longer poses a threat to human health or the environment in accordance with LAC 33:I.Chapter 13. The closure method for the pond is provided in Section 3.1 of the *Plan*.

While the landfill is still in operation in other cells, the leachate and water run-off and run-on control systems will be maintained and utilized. Water in contract with ash will be directed to the pond; non-contact storm water will be diverted to the perimeter ditch collection system.

• Final Grading:

Final machine compacting and grading in the area of closure will be completed before capping to accommodate the final slide slopes that will have a maximum steepness of 3H:1V. Once final ash grades are reached at the specified slopes and the final surface features shaped (drainage terracing), the ash surface will be recompacted, scarified to a maximum depth of 3- to 6-inches to provide a bonding surface for the final cover and HDPE membrane (cap). The drainage terraces will be sloped at 1% to direct surface runoff in a controlled manner.

The installation of the final cover for the landfill portion of the Ash Management Area will be initiated either no later than 30 days after final grades are reached for the entire facility or no later than 30 days after the final grade in a specific cell is reached if Cleco decides to close a portion of the facility at a time. In either case, the final cover installation will be completed as soon possible, but no later than 180 days after final grades are reached.

Following the installation of the final cover, Cleco will schedule an inspection with the appropriate LDEQ personnel for approval before proceeding with the additional closure activities. After receiving approval from the Agency, a six-inch layer of topsoil will be placed and seeded to promote vegetative growth in order to minimize the potential for erosion and to return the area to a more natural appearance.

The last step will be the submittal of the Mortgage and Conveyance Record to the Rapides Parish Clerk of Court. A copy of the submittal certified by the Clerk of Court will be forward to the LDEQ Office of Environmental Services, Permits Division.

Cleco will conduct the pre-closure activities as identified below prior to placing the final cover (cap) on the pond.

• Notification of Intent to Close:

Cleco will submit a written Notification of Intent to Close to the LDEQ Office of Environmental Services, Permits Division at least 90 days before closure, or intent to close the pond. The notification will include:

- o Date of planned closure;
- o Changes, if any, requested in the approved closure plan; and
- Closure schedule and estimated cost.

• Dewatering:

The pond will be drained; any remaining surface water and sludge containing free liquids will be solidified or removed.

• Runoff-Diversion System:

Cleco will conduct sampling and inspection of the outfalls in accordance with the requirements of the associated LPDES permit to ensure compliance with water quality standards and to ensure the effective operation of the run-on/runoff diversion system for the facility during the post-closure period.

Final Grading:

The pond will be filled with appropriate material (i.e., ash, earthen, etc.) to the final grade at a 4% slope from a high point adjacent to the landfill of the perimeter levee system of the pond. Machine compacting and grading in the area of closure will be completed before capping to accommodate the slope of the final cap. Once final grades are reached, the earthen material will be recompacted, scarified to a maximum depth of 3- to 6-inches to provide a bonding surface for the final cover (cap).

The installation of the final cover for the pond will be initiated either no later than 30 days after final grades are reached for the entire facility or no later than 30 days after the final grade in a specific cell is reached if Cleco decides to close a portion of the facility at a time. In either case, the final cover installation will be completed no later than 180 days after final grades are reached.

Following the installation of the final cover, Cleco will schedule an inspection with the appropriate LDEQ personnel for approval before proceeding with the additional closure activities. After receiving approval from the Agency, a six-inch layer of topsoil will be placed and seeded to promote vegetative growth in order to minimize the potential for erosion and to return the area to a more natural appearance.

The last step will be the submittal of the Mortgage and Conveyance Record to the Rapides Parish Clerk of Court. A copy of the submittal certified by the Clerk of

Court will be forward to the LDEQ Office of Environmental Services, Permits Division

See the Facility Closure/Post-Closure Plan (Appendix I).

c. the estimated cost of closure of the facility, based on the cost of hiring a third party to close the facility at the point in the facility's operating life when the extent and manner of its operation would make closure the most expensive.

The closure cost estimate, based on the cost of hiring a third party to close the facility, is \$6,900,000.

A breakdown of the closure/post closure cost estimate is included in Attachment 2 of the Facility Closure/Post-Closure Plan (Appendix I).

- 2. The closure plan for Type I and II landfills and surface impoundments must include:
 - a. a description of the final cover and the methods and procedures used to install the cover;

Once final ash grades are reached, a 24-inch clay cover along with an HDPE membrane, textured both sides, and non-woven geotextile, will be installed. The specifications for the clay cover are:

- Permeability: <1.0 x 10⁻⁷ cm/sec
- Material Source: On-site (LDEQ material suitability letter, Attachment 1)
- Installation: Clay cover placement will be in accordance with the lift thicknesses, compactive effort, and testing as will be prescribed in the construction/closure detailed specifications.
- Side Slopes: No steeper than 3H:1V.
- Drainage: drainage terraces, sloped at 1%, will receive a geogrid erosion control material to help control concentrated runoff until vegetation is established. At the point of terrace convergence, "down comers" or "down slope flumes" will be installed to convey the water from the terraces to the perimeter ditch system. The ditches will direct the surface water runoff to the clean water discharge point.
- Top: Top of the final cap will be at a minimum 4% slope.

After installation, the LDEQ will inspect and approve of the 24-inch clay cover. Following Agency approval, a minimum of 6-inches of topsoil will be placed,

seeded, fertilized and mulched to promote a vegetative layer to minimize erosion and to return the area to a more natural appearance.

b. an estimate of the largest area of the facility ever requiring a final cover at any time during the active life;

The largest area ever requiring final cover at any time during the active life will be the two largest cells (Cells 2 and 3) which is approximately 41.3 acres.

c. an estimate of the maximum inventory of solid waste ever on-site over the active life of the facility; and

The estimated maximum inventory of solid waste ever on site is 6,119,742 yd³.

d. a schedule for completing all activities necessary for closure.

Since closure will occur as individual modules and cells are completed, no individual closure time frames are expected to span more than one construction season. The general schedule to be followed during each closure event is provided below.

The installation of the final cover for the landfill portion of the Ash Management Area will be initiated either no later than 30 days after final grades are reached for the entire facility or no later than 30 days after the final grade in a specific cell is reached if Cleco decides to close a portion of the facility at a time. In either case, the final cover installation will be completed as soon possible, but no later than 180 days after final grades are reached.

Following the installation of the final cover, Cleco will schedule an inspection with the appropriate LDEQ personnel for approval before proceeding with the additional closure activities. After receiving approval from the Agency, a six-inch layer of topsoil will be placed and seeded to promote vegetative growth in order to minimize the potential for erosion and to return the area to a more natural appearance.

The last step will be the submittal of the Mortgage and Conveyance Record to the Rapides Parish Clerk of Court. A copy of the submittal certified by the Clerk of Court will be forward to the LDEQ Office of Environmental Services, Permits Division.

The closure plan is discussed further in the Facility Closure/Post-Closure Plan (Appendix I).

3. The closure plan for all Type I and II facilities and Type III wood waste and construction/demolition debris facilities shall include the following:

a. the sequence of final closure of each unit of the facility, as applicable;

Since closure will occur as individual modules and cells are completed, no individual closure time frames are expected to span more than one construction season. The general schedule to be followed during each closure event is provided below.

The installation of the final cover for the landfill portion of the Ash Management Area will be initiated either no later than 30 days after final grades are reached for the entire facility or no later than 30 days after the final grade in a specific cell is reached if Cleco decides to close a portion of the facility at a time. In either case, the final cover installation will be completed as soon possible, but no later than 180 days after final grades are reached.

Following the installation of the final cover, Cleco will schedule an inspection with the appropriate LDEQ personnel for approval before proceeding with the additional closure activities. After receiving approval from the Agency, a six-inch layer of topsoil will be placed and seeded to promote vegetative growth in order to minimize the potential for erosion and to return the area to a more natural appearance.

The last step will be the submittal of the Mortgage and Conveyance Record to the Rapides Parish Clerk of Court. A copy of the submittal certified by the Clerk of Court will be forward to the LDEQ Office of Environmental Services, Permits Division.

See the Facility Closure/Post-Closure Plan (Appendix I).

b. a drawing showing final contours of the facility; and

See the Facility Closure/Post-Closure Plan (Appendix I).

c. a copy of the document that will be filed upon closure of the facility with the official parish recordkeeper indicating the location and use of the property for solid waste disposal, unless the closure plan specifies a clean closure.

A copy of the document that will be filed upon closure of the facility with the official parish recordkeeper indicating the location and use of the property for solid waste disposal, unless the closure plan specifies a clean closure is provided in this application as Appendix L.

K. Facility Post-Closure. Standards governing post-closure requirements are contained in LAC 33:VII.711.F (Type I and II landfills), LAC 33:VII.713.F (Type I and II

surface impoundments), LAC 33:VII.715.F (Type I and II landfarms), and LAC 33:VII.721.E (Type III construction and demolition debris and woodwaste landfills).

The Closure/Post-Closure Plan addressing the requirements of LAC 33:VII.521.K, LAC 33:VII.711.F (Section 6.0), and LAC 33:VII.713.F (Section 7.0) for the proposed facility is included as Appendix I of this application.

- I. The post-closure plan for all facilities must include the following:
 - a. specification of the long-term use of the facility after closure, as anticipated; and

There is no anticipated use for the facility during post-closure and following the post-closure care.

b. the cost of conducting post-closure of the facility, based on the estimated cost of hiring a third party to conduct post-closure activities in accordance with the closure plan.

The closure cost estimate, based on the cost of hiring a third party to close the facility, is \$6,900,000.

The closure plan is discussed further in the Facility Closure/Post-Closure Plan (Appendix I).

- 2. The post-closure plan for Type I and II facilities must include the following:
 - a. the method for conducting post-closure activities, including a description of the monitoring and maintenance activities and the frequency at which they will be performed;

Post-Closure care of the facility will include the following activities:

- Final Cover (Cap) Maintenance- Cleco will conduct maintenance activities to ensure the integrity and effectiveness of the final cover. These activities will entail inspections; repairs necessary to correct effects of settling, subsidence, erosion, or other events; and maintaining the run-off and runoff diversion system. All activities related to the maintaining the integrity of the final cover will be provided in annual reports to the LDEQ Office of Environmental Compliance, Surveillance Division;
- Leachate Collection System Operation and Maintenance- The leachate collection system will be inspected and maintained during the post-closure period. Inspection of the leachate collection system will be conducted quarterly and will consist of inspecting the riser pipes for damage and

checking the system for the presence of liquids. If liquids are present, then they will be pumped from the collection system into a portable holding tank and disposed off-site. At the conclusion of the post-closure period, the leachate collection pipes will be abandoned by cutting off the leachate pipes near the surface and sealing a cap over the end of the pipe;

Groundwater Monitoring and System Maintenance- Cleco will conduct groundwater monitoring activities, and maintain the monitoring wells, in accordance with the Groundwater Sampling and Analysis. During the postclosure period in detection monitoring, groundwater sampling and analysis will be semiannually. The groundwater monitoring effort will continue through the post-closure period for the associated Pond, which potentially will remain in operation after closure of the landfill until the time when leachate is no longer produced from the facility or until Cleco can demonstrate that the leachate no longer poses a threat to human health or the environment in accordance with LAC 33:I.Chapter 13. Therefore, the plugging and abandonment of the groundwater monitoring wells may occur after the postclosure period for the landfill. In any case, the wells will be plugged and abandoned with the method included in the Groundwater Sampling and Analysis Plan (Appendix F of the Solid Waste Permit Application);

• Reporting-

- 1. <u>Final Cap Maintenance</u>- As stated previously in Section 2.2.1, all post-closure care activities related to the maintaining the integrity of the final cover will be provided in annual reports to the LDEQ Office of Environmental Compliance, Surveillance Division. Each report will include the following:
 - o Evaluation of the integrity of the cap;
 - o Details of repairs of maintenance to the cap;
 - o Information on the functioning of the leachate collection system; and
 - Groundwater maintenance and monitoring activities.
- 2. Groundwater Monitoring- Reporting and recordkeeping for the groundwater monitoring activities will be conducted in accordance with Section 8.0 of the *Groundwater Sampling and Analysis Plan* (Appendix F of this Solid Waste Permit Application).
- 3. Water Quality- Cleco will submit discharge monitoring reports (DMRs) for the outfalls associated with the run-on/runoff diversion system in accordance with the LPDES permit.

b. the method for abandonment of monitoring systems, leachate collection systems, gas-collection systems, etc.;

The leachate system will be abandoned when either leachate is no longer generated or until Cleco can demonstrate that the leachate no longer poses a threat to human health or the environment in accordance with LAC 33:I.Chapter 13. To close the system, Cleco will cut and cap all header pipes that direct leachate to the sumps.

c. measures planned to ensure public safety, including access control and gas control; and

During the post-closure period, public safety will be ensured through the continued controlled access to the RPS. The facility is located within the RPS site, visitors are required to check in at the front gate and must be escorted by company personnel at all times.

d. a description of the planned uses of the facility during the post-closure period.

There is no anticipated use for the facility during post-closure and following the post-closure care.

For more information, please see the Facility Closure/Post-Closure Plan (Appendix I). Please note that a gas-collection system is not required due to the nature of the ash material to be placed within the proposed facility.

- L. Financial Responsibility. Standards governing financial responsibility are contained in LAC 33:VII.727. A section documenting financial responsibility according to LAC 33:VII.727, which contains the following information, must be included for all facilities:
 - the name and address of the person who currently owns the land and the name and address of the person who will own the land if the standard permit is granted (if different from the permit holder, provide a copy of the lease or document which evidences the permit holder's authority to occupy the property); or

Cleco Power, LLC, a subsidiary of the Cleco Corporations, owns the land that the Type I Landfill and the Leachate Collection Pond will be located. The address of their corporate office is 2030 Donahue Ferry Road, Pineville, Louisiana 71360. The mailing address is Post Office Box 5000, Pineville, LA 71360.

2. the name of the agency or other public body that is requesting the standard permit; or, if the agency is a public corporation, its published annual report; or, if otherwise, the names of the principal owners, stockholders, general partners, or officers;

Cleco Power, LLC, is requesting this permit. A copy of its most current published annual report is included in Appendix K.

3. evidence of liability coverage, including:

a. personal injury, employees, and the public (coverage, carriers, and any exclusions or limitations);

Please see a copy of Cleco's most current financial test documentation, which is identical to the wording specified in LAC 33:VII.727.A.2.i.iv.(e), is provided in this permit application as Appendix K.

b. property damage (coverage and carrier);

Please see a copy of Cleco's most current financial test documentation, which is identical to the wording specified in LAC 33:VII.727.A.2.i.iv.(e), is provided in this permit application as Appendix K.

c. environmental risks; and

Please see a copy of Cleco's most current financial test documentation, which is identical to the wording specified in LAC 33:VII.727.A.2.i.iv.(e), is provided in this permit application as Appendix K.

4. evidence of a financial assurance mechanism for closure and/or post-closure care and corrective action for known releases when needed.

Cleco currently maintains financial assurance for closure, post-closure, and liability for the existing solid waste facilities at RPS through the use of the financial test. Cleco will update their financial assurance to included closure and post-closure costs for the ash management unit and leachate collection pond, prior to placing these facilities into service. A copy of Cleco's most current financial test documentation, which is identical to the wording specified in LAC 33:VII.727.A.2.i.iv.(e), is provided in this permit application as Appendix K.

Since Cleco utilizes the financial test, the amount of annual payments is not applicable.

M. Special Requirements. The administrative authority may require additional information for special processes or systems and for supplementary environmental analysis.

Cleco will comply with any additional information requests that may be necessary for special processes, systems, or for supplementary environmental analysis. Cleco is prepared to supply the Assistant Secretary with additional information related to the approval of this application.



4.0 LAC 33:VII.523. Additional Supplementary Information

The following supplementary information is required for all solid waste processing and disposal facilities. All responses and exhibits must be identified in the following sequence to facilitate the evaluation:

A. a discussion demonstrating that the potential and real adverse environmental effects of the facility have been avoided to the maximum extent possible;

Cleco has implemented safeguards at the Rodemacher Power Station (RPS) to prevent, to the maximum extent possible, potential and real impacts to the environment. To minimize off-site impacts, Cleco will use state-of-the-art air emission control technology such as scrubbers, baghouses, and automatic shut-off systems in the design for the facility. Spill plans, best management practices, and traveling screens are some of the safe guards and controls put in place at RPS to prevent any unauthorized discharge and minimize water related impacts to the environment. Soil impacts will be minimized by proper waste management, recycling, and proper disposal. Impacts to crops, livestock, or agriculture are not anticipated.

Cleco addressed this question further in the IT analysis. Please see Appendix M for further details.

B. a cost-benefit analysis demonstrating that the social and economic benefits of the facility outweigh the environmental-impact costs;

Based on Cleco's review of, and mitigation of, potential and real adverse environmental impacts and effects (costs) (primarily in the response to IT Question 1), and its identification, assessment, and quantification of the significant social and economic benefits of the proposed Rodemacher Brownfield Solid Fuel Unit 3 Project, it is concluded that the economic benefits of the project outweigh the environmental impact costs.

Cleco addressed this question further in the IT analysis. Please see Appendix M for further details.

C. a discussion and description of possible alternative projects which would offer more protection to the environment without unduly curtailing nonenvironmental benefits;

There are no alternative projects that would offer more protection to the environment than the proposed facility without unduly curtailing non-environmental benefits. The Rodemacher Brownfield Solid Fuel Unit 3 Project was developed to provide additional power to Cleco's service area, in a cost-effective manner. Cleco has investigated its need for capacity, reliability, and fuel cost management, taking into account a range of factors, including the constrained transmission environment adjacent to its service area and the cost of natural gas.

Cleco Power, L.L.C. Rodemacher Power Station

Solid Waste Permit Application - Type I Landfill and Leachate Collection Pond

Cleco addressed this question further in the IT analysis. Please see Appendix M for further details.

D. a discussion of possible alternative sites that would offer more protection to the environment without unduly curtailing nonenvironmental benefits; and

There are no alternative sites that would offer more protection to the environment than the selected site without unduly curtailing non-environmental benefits. An analysis of alternative sites was performed by Cleco Power. See the attached document entitled Alternative Sites Evaluation for Cleco Power, L.L.C. – Rodemacher Brownfield Solid Fuel Unit 3 Project

Cleco addressed this question further in the IT analysis. Please see Appendix M for further details.

E. a discussion and description of the mitigating measures which would offer more protection to the environment than the facility, as proposed, without unduly curtailing non-environmental benefits

Sufficient mitigating measures have been incorporated in the existing landfill to minimize potential environmental impacts. These measures include:

- 1. Specific Wastes: The only wastes placed in the landfill are the ones for which it is designated. There is no mixing of wastes placed in the landfill.
- 2. Sire Protection: The dikes and other areas around the landfill are maintained to prevent erosion or degradation.
- 3. Groundwater Protection: Groundwater monitoring wells have been constructed and additional ones are proposed for around the landfill to ensure that the wastes being disposed of in the landfill are not contaminating groundwater.
- 4. Surface Water Protection Discharges from the landfill are controlled to meet the criteria of the National Pollutant Discharge Elimination System Permit for the Plant site. Discharges which meet NPDES criteria do not significantly impact surface waters.

Other mitigating measures which could be applied at the landfill are inappropriate for this type of waste disposal. These measures include odor control, fugitive dust control, and control of disease vectors. These additional measures would as significant costs to the disposal operation without providing significant protection for the environment.

Cleco addressed this question further in the IT analysis. Please see Appendix M for further details.

4 - Section 523 Revised.doc 4-2 1/3/2006



5.0 LAC 33:VII.709. Standards Governing All Solid Waste Disposal Facilities (Type I and II)

A. Location Characteristics

1. Access to facilities by land or water transportation shall be by all-weather roads or waterways that can meet the demands of the facility and are designed to avoid, to the extent practicable, congestion, sharp turns, obstructions, or other hazards conducive to accidents; and the surface roadways shall be adequate to withstand the weight of transportation vehicles.

The proposed facility will be accessible at all times by all-weather roads that will meet the demands of the facility and the roads will be constructed to avoid congestion, sharp turns, obstructions, or other hazards conducive to accidents. All roads will be adequate to withstand the weight of transportation vehicles.

2. Facilities that dispose of putrescible solid waste shall not be located within 10,000 feet of any public-use airport runway end used by turbojet aircraft or within 5,000 feet of any public-use airport runway end used by only piston-type aircraft. Permit applicants for proposed Type II landfills to be located within a five-mile radius of any airport runway must notify the affected airport and the Federal Aviation Administration.

Not applicable. Only nonputrescible as generated from the onsite utility boilers be disposed within the proposed facility.

3. Environmental Characteristics. Facilities located in, or within 1,000 feet of, swamps, marshes, wetlands, estuaries, wildlife-hatchery areas, habitat of endangered species, archaeologic sites, historic sites, publicly owned recreation areas, and similar critical environmental areas shall be isolated from such areas by effective barriers that eliminate probable adverse impacts from facility operations.

There are no known historic sites, recreation areas, designated wildlife-management areas, swamps and marshes, habitats for endangered species, and other sensitive ecologic areas within 1,000 feet of the facility perimeter or as otherwise appropriate. The facility is located in approximately 73.12 acres of wetlands previously permitted by the United States Army Corp of Engineers (COE) New Orleans District and subsequently, given approval by the LDEQ, for construction of a solid waste management unit. There is one archaeologic site (RA113), approximately 900 feet to the north of the area. According to the Louisiana State Historic Preservation Office records, RA113 is not a defined site which is eligible for the National Register. The location of the proposed facility within the existing perimeter levee system precludes site operations from affecting this area. A site location map is provided as Figure 1.

5 - Section 709 Revision 2 doc 5-1 1/20/2006



Correspondence from the COE, the State Historic Preservation Office, United States Fish and Wildlife Service (USFWS) and the Louisiana Department of Wildlife and Fisheries, Natural Heritage Program is provided in Appendix A.

In addition, Cleco conducted an environmental impact assessment of the proposed facility, as included within the responses to the Environmental Impact Questions (Appendix M).

4. Units of a facility which have not received waste prior to October 9, 1993, shall not be located in wetlands, unless the permit holder or applicant can make the following demonstrations to the administrative authority:

Cleco conducted an environmental impact assessment of the proposed facility, as included within the responses to the Environmental Impact Questions (Appendix M). Specific information relating to Cleco's efforts to minimize the potential impact to the surrounding environment is provided below.

In addition, please note that the proposed facility will be constructed within an existing levee system constructed under a COE permit.

a. where applicable under Section 404 of the Clean Water Act or applicable state wetlands laws, the presumption that a practicable alternative to the proposed landfill is available which does not involve wetlands is clearly rebutted;

The location of the proposed facility was previously permitted by the COE in 1977 (permit number LMNOD-SP) and later approved by the LDEQ. Cleco received a letter of confirmation from the COE, dated May 27, 2005, that the permit for this area is still valid. A copy of this letter is provided in Appendix A of this permit application.

- b. the construction and operation of the facility will not:
 - i. cause or contribute to violations of any applicable state water-quality standard;

Cleco proposes to utilize the inactive area of an existing, permitted impoundment within the Rodemacher facility for management of fly ash associated with the proposed Rodemacher Brownfield Solid Fuel Unit 3 Project. Utilization of the existing area permitted for the expansion of the impoundment will require filling approximately 73.12 acres of previously permitted wetlands.

ii. violate any applicable toxic effluent standard or prohibition under Section 307 of the Clean Water Act;



A request for a Water Quality Certification has been submitted to the LDEQ in June 2005 and has been granted by the LDEQ. In addition, an application for a Clean Water Act Section 404 Permit and a Rivers and Harbors Act Section 10 Permit was submitted by Cleco to the COE on May 16, 2005.

iii. jeopardize the continued existence of endangered or threatened species or results in the destruction or adverse modification of a critical habitat, protected under the Endangered Species Act of 1973; and

A review of the USFWS and the Louisiana Department of Wildlife and Fisheries, Natural Heritage Program databases was conducted to determine if protected species may be present in Rapides Parish (Appendix A). Records indicate that the bald eagle (Haliaeetus leucocephalus), Louisiana pearlshell mussel (Margaritifera hembeli), pallid sturgeon (Scaphirhynchus albus), and red-cockaded woodpecker (Picoides borealis) have potential to be present within Rapides Parish. During an on-site protected species survey on August 16, 2004, no threatened or endangered species were observed within the proposed project area boundaries.

iv. violate any requirement under the Marine Protection, Research, and Sanctuaries Act of 1972 for the protection of a marine sanctuary;

Quality wildlife habitat is not expected to be adversely impacted by the proposed project. Project construction and operation will not impact Bayou Jean de Jean which is located adjacent to the eastern boundary of the proposed project area. The bayou and its associated riparian habitats will continue to function as a corridor for fish and wildlife species.

- c. the facility will not cause or contribute to significant degradation of wetlands. The owner or operator must demonstrate the integrity of the facility and its ability to protect ecological resources by addressing the following factors:
 - i. erosion, stability, and migration potential of native wetland soils, muds, and deposits used to support the facility;

The proposed facility will be located within an existing levee system of an area previously permitted for solid waste management. The levee system has remained intact, and has not shown any signs of deterioration or settlement over its 25-year lifespan due to the proper design and construction procedures. Native clay material was utilized for the levee system and was installed in lifts and compacted to design standards. The integrity of the system is maintained through vegetative growth and routine maintenance by site personnel.

The base of the proposed facility will be provided with a liner system consisting of, at a minimum, three-feet of recompacted clay and a geosynthetic layer.



The levee system and foundation of the proposed facility will ensure that all material stored within the unit, and the leachate/contact surface water generated during the use of the facility will remain within the unit and will not adversely impact area wetlands.

ii. erosion, stability, and migration potential of dredged and fill materials used to support the facility;

The proposed facility will be located within an existing levee system previously permitted for solid waste management. The levee system has remained intact, and has not shown any signs of deterioration or settlement over its 25-year lifespan due to the proper design and construction procedures. Native clay material was utilized for the levee system was installed in lifts and compacted to design standards. The integrity of the system is maintained through vegetative growth and routine maintenance by site personnel.

The base of the proposed facility will be provided with a liner system consisting of, at a minimum, three-feet of recompacted clay and a geosynthetic layer.

The levee system and foundation of the proposed facility will ensure that all material stored within the unit, and the leachate/contact surface water generated during the use of the facility will remain within the unit and will not adversely impact area wetlands.

iii. the volume and chemical nature of the waste managed in the facility;

The maximum quantity of waste that may be handled by the proposed facility is approximately 650,000 tons annually and 148,000 lbs generated hourly.

The types of materials to be disposed in the facility will be non-hazardous, onsite-generated materials only. The materials consist of bed ash and fly ash material generated as a combustion by-product of solid fuel (coal, petcoke, or a blend) and limestone within the two CFB electric utility boilers of the RPS Unit 3. None of the materials disposed are characteristic or listed hazardous wastes as defined by LAC 33:V.Subpart 1 or by federal regulations (this is confirmed by process knowledge of each waste).

Due to similar origins, fly ash and bed ash have similar chemical and physical properties. The material will have minimal organic/biological content due to the combustion process within each CFB boiler.

The volume and chemical nature of the waste managed in the facility is addressed further in the Facility Operational Plan (Appendix E).



iv. impacts on fish, wildlife, and other aquatic resources and their habitat from release of the solid waste;

The impacts on fish, wildlife, and other aquatic resources and their habitat from release of the solid waste will be minimized because of the perimeter levee system, liner system and operational procedures, as discussed within the Facility Operational Plan (Appendix E). All leachate and surface contact water generated from the landfill will be routed to the leachate collection/runoff pond prior to discharge through the LPDES permitted outfall R04.

v. the potential effects of catastrophic release of waste to the wetland and the resulting impacts on the environment; and

The potential effects of catastrophic release of waste to the wetland and the resulting impacts on the environment will be minimized because of the perimeter levee system, liner system and operational procedures, as discussed within the Facility Operational Plan (Appendix E). All leachate and surface contact water generated from the landfill will be routed to the leachate collection/runoff pond prior to discharge through the LPDES permitted outfall R04.

vi. any additional factors, as necessary, to demonstrate that ecological resources in the wetland are sufficiently protected;

The proposed facility will handle only non-hazardous material generated from the operation and maintenance of the two CFB utility boilers that will comprise Unit 3. As discussed within the Facility Operational Plan (Appendix E), the chemical and physical characteristics of the ash material do not pose a severe threat to the ecological resources in the area. In addition, the design of the proposed facility and the construction and operational procedures to be implemented will provide adequate methods to ensure that the ash material remains within the facility while stored and any leachate or contact surface generated during operation will be properly handled prior to discharge through a LPDES permitted outfall.

d. to the extent required under Section 404 of the Clean Water Act or applicable state wetlands laws, steps have been taken to attempt to achieve no net loss of wetlands (as defined by acreage and function) by first avoiding impacts to wetlands to the maximum extent practicable as required by Paragraph A.4 of this Section; then, minimizing unavoidable impacts to the maximum extent practicable; and, finally, offsetting remaining unavoidable wetland impacts through all appropriate and practicable compensatory mitigation actions (e.g., restoration of existing degraded wetlands or creation of man-made wetlands); and



Cleco is proposing to purchase credits at an approved Mitigation Bank as deemed acceptable by the COE, as compensatory mitigation for unavoidable impacts to wetlands associated with the proposed Rodemacher Brownfield Solid Fuel Unit 3 Project. Mitigation Banking eliminates the temporal losses of wetland values that occur when proposed project impacts are realized. Utilization of Mitigation Banks as compensatory mitigation for wetland impacts will have a greater ecological benefit versus individual isolated or fragmented mitigation projects.

e. sufficient information is available to make a reasonable determination with respect to these demonstrations.

The proposed location of the facility and surface impoundment was previously permitted by the COE in 1977 (permit number LMNOD-SP). Cleco received a letter of confirmation from the COE, dated May 27, 2005, that the permit for this area is still valid. A copy of this letter is provided in Appendix A of this permit application.

5. Units of a facility which have not received waste prior to October 9, 1993, shall not be located within 200 feet (60 meters) of a fault that has had displacement in Holocene time unless the permit holder or applicant demonstrates to the administrative authority that an alternative setback distance of less than 200 feet will prevent damage to the structural integrity of the unit and will be protective of human health and the environment.

There are no known faults within the facility or within one mile of the perimeter of the facility. The review of available published information did not reveal information on faulting near the facility. Over 50 soil borings have been conducted at the facility and faults have not been noted within the facility itself.

6. Disposal facilities may be subject to a comprehensive land-use or zoning plan established by local regulations or ordinances.

Cleco acknowledges this standard.

B. Facility Characteristics

- 1. Perimeter Barriers, Security, and Signs
 - a. Facilities must have a perimeter barrier around the facility that prevents unauthorized ingress or egress, except by willful entry.

All visitors to the plant are required to check in at the front gate and must be escorted by company personnel at all times. In addition, unauthorized entry to the facility is minimized by perimeter features including fencing in open areas, and natural deterrents such as Lake Rodemacher and portions of heavily wooded areas.



b. During operating hours, each facility entry point shall be continuously monitored, manned, or locked.

Facility security is addressed within the Facility Operational Plan (Appendix E). As stated within that Plan, the proposed facility will be located within the RPS site.

c. During non-operating hours, each facility entry point shall be locked.

Facility security is addressed within the Facility Operational Plan (Appendix E). As stated within that Plan, the proposed facility will be located within the RPS site.

d. Facilities that receive wastes from off-site sources shall post readable signs that list the types of wastes that can be received at the facility.

The proposed facility will not receive waste form offsite sources.

2. Buffer Zones

a. Buffer zones of not less than 200 feet shall be provided between the facility and the property line. A reduction in this requirement shall be allowed only with the permission, in the form of a notarized affidavit, of the adjoining landowner and occupants. A copy of the notarized affidavit waiving the 200-foot buffer zone shall be entered in the mortgage and conveyance records of the parish for the adjoining landowner's property. Buffer zone requirements may be waived or modified by the administrative authority for areas of landfills which have been closed in accordance with these regulations and for existing facilities, or in accordance with LAC 33:VII.307.

The proposed facility will be located within the RPS and will be provided with a minimum 200-foot buffer zone to the fenced property line.

b. No storage, processing, or disposal of solid waste shall occur within the buffer zone.

There will be no storage, processing, or disposal of solid waste within the aforementioned 200-foot buffer zone.

3. Fire Protection and Medical Care. Facilities shall have access to required fire protection and medical care, or such services shall be provided internally

Emergency first-aid is available at RPS including the proposed facility. In the event of more serious injuries or events, Cleco has arranged for offsite assistance through the off-site groups as identified below.

- Rapides Regional Medical Center
- Acadian Ambulance



o Boyce Volunteer Fire Department

Fire protection and medical care measures for the proposed facility and the entire RPS site are addressed further within the Facility Operational Plan (Appendix E) and the site Emergency Response Action Plan (ERAP) as provided in Appendix G of this application.

4. Landscaping. All proposed facilities, other than those which are located within the boundaries of a plant, industry, or business which generates the waste to be processed or disposed of, must provide landscaping to improve the aesthetics of the facility.

Not Applicable. The ash management area is situated within the confines of the existing RPS. Cleco, though, will continue all efforts to minimize adverse aesthetic impacts to the surrounding area.

5. Receiving and Monitoring Incoming Wastes

- a. Each facility shall be equipped with a device or method to determine quantity (by wet-weight tonnage); sources (whether the waste was generated in-state or out-of-state and, if it is industrial solid waste, where it was generated); and types of incoming waste (i.e., commercial, residential). The facility shall also be equipped with a device or method to control entry of the waste and prevent entry of unrecorded or unauthorized deliverables (i.e., hazardous waste, PCB waste, and unauthorized or unpermitted solid waste). At Type II landfills, this method shall include random inspections of incoming waste loads at a frequency to reasonably ensure exclusion of such prohibited wastes.
- b. Each facility shall be equipped with a central control and recordkeeping system for tabulating the information required in Subparagraph B.5.a of this Section.

Not applicable. Cleco will not receive any waste streams from off site. The ash management area will be utilized for the disposal of fly and bed ash generated by Unit 3.

6. Discharges from operating units of all facilities must be controlled and must conform to applicable state and federal laws including the federal Clean Water Act and Louisiana Water Pollution Control Law. Applications for applicable state and federal discharge permits must be filed before a standard permit may be issued.

RPS is currently operating under LPDES permit number LA008036, which was submitted to LDEQ in April of 1996. An addendum has been sent to LDEQ to include anticipated changes in operations due to the installation of Solid Fuel Unit Number 3.



Solid Waste Permit Application - Type I Landfill and Leachate Collection Pond

Figure 7 contains all outfalls for RPS. Outfall R02 is used for intermittent discharge of coal sedimentation pond effluent. Outfall R03 is used for continuous discharge of OTCW (once-through cooling water) from Units 1, 2 and 3. R04 is used for combined intermittent discharge of bottom ash pond, fly ash pond, and secondary settling pond. R05 is used for intermittent discharge of petroleum coke and limestone stockpile storm water runoff. R06 is used for combined, intermittent discharge of effluent from chemical metal cleaning waste retention/settling pond effluent. R07 is used for combined, intermittent discharge of clarifier sludge sedimentation pond effluent, miscellaneous waste waters, and storm water. R08 is used for continuous discharge of low volume waste waters, including Units 1 and 2 boiler blowdown, and intermittent plant service water and wash water. R09 is used for combined, intermittent discharge of Units 1, 2, and 3 low volume waste waters including floor drains, oil water separators. Unit 3 CFB boiler blowdown, and the water treatment plant waste waters. R10 is used for hydrostatic test waters from pipe/equipment, construction or repair prior to putting into service. R01 is used for intermittent overflow discharge at the impoundment spillway from the Lake Rodemacher reservoir, including previously monitored and limited OTCW and effluents from R08 and R09 discharged through Internal Outfall R03 and the previously monitored and limited effluents.

C. Facility Geology

1. Soils

a. Except as provided in Subparagraph C.1.b of this Section, facilities shall have natural soils of low permeability for the area occupied by the solid waste facility, including vehicle parking and turnaround areas, that should provide a barrier to prevent any penetration of surface spills into groundwater aquifers underlying the area or to a sand or other water-bearing strata that would provide a conduit to such aquifers.

The site is located near the interface of five geological units from two distinct geological ages. The southeast portion of the site is located within Holocene Age deposits, either natural levee or alluvium. These deposits have been placed as a result of meanders of the Red River and its tributaries. Holocene Age deposits are termed Recent deposits because they are the youngest of the geologic sequence. These soils of Holocene Age are commonly weak and normally consolidated.

The northwest portions of the site, which are topographically higher, are within the Terrace deposits of Pleistocene age (Prairie, Intermediate or High Terrace). These are older and more competent geologic conditions relative to the Holocene terrace deposits on the south east portion of the property. Prairie Terrace deposits are normally tan and gray and are composed of silt, clays and sands with little gravel. The Intermediate and High Terrace deposits are typically orange, red and gray. Gravel depositions are more typical in these formations.



Geologic cross-sections I-I' through P-P' (Figures 11-18) utilize soil data from the recent geotechnical investigation (Appendix B) combined with historical soil boring data (Appendix C). The average elevation of the ash management area is 88 feet mean sea level (msl), as shown on Figure 24. Actual surface elevations for all borings are shown on the cross-sections (Figures 10-18). According to engineering plans and specifications, the lowest elevation for the top of the clay liner will be 78 feet msl. The lowest excavation elevation is 75 feet msl. This elevation is shown on each cross-section with a dashed line.

The soils data presented on the cross-sections (Figures 11-18) indicate the soils underlying the ash management area are predominantly naturally occurring, low permeability clays, clayey silts and sandy clays (Appendix B). Additionally, the base of the proposed facility will be constructed with a liner system consisting of, at a minimum, three-feet of recompacted clay and a geosynthetic layer. The ash management area of the proposed facility will also be provided with a leachate collection and removal system.

b. A design for surfacing natural soils that do not meet the requirement in Subparagraph C.1.a of this Section shall be prepared and installed under the supervision of a registered engineer, licensed in the state of Louisiana, with expertise in geotechnical engineering and geohydrology. Written certification by the engineer that the surface satisfies the requirements of Subparagraph C.1.a of this Section shall be provided.

It is not anticipated that soils will not meet the requirements. In the event surfacing natural soils is necessary, a licensed engineer will prepare and install.

- c. The subsurface soils and groundwater conditions at Type I facilities and at Type II surface impoundments and landfills shall be characterized by a registered engineer, licensed in the state of Louisiana, with expertise in geotechnical engineering and geohydrology or by a geologist with expertise in these fields. The characterization shall meet the following guidelines:
 - i. geotechnical borehole spacing shall be no greater than 450 feet (minimum of four borings required);
 - ii. all boreholes shall extend to a depth of at least 30 feet below the lowest point of the excavation. At least 10 percent of the borings (minimum of three borings) shall extend to 100 feet below grade level to characterize the shallow geology;

Aquaterra Engineering performed a geotechnical investigation in support of this solid waste permit application in December, 2004. The report is included as Appendix B. The geotechnical investigation included a total of 19 borings drilled to depths ranging from 40 to 100 feet below ground surface. Three of



those borings were drilled to 100 feet below ground surface. The borings were on a grid spacing of 450 feet.

all borings shall be continuously sampled to at least 30 feet below the base of excavation, with the use of thin-wall and/or split-spoon devices or similar coring devices. After 30 feet, samples shall be at five-foot intervals;

The borings were continuously sampled to a depth of 40 feet or total depth if less than 40 feet and were sampled on five-foot intervals below 40 feet in depth.

iv. borings, geotechnical field tests, and laboratory tests shall be conducted according to the standards of the American Society for Testing and Materials (ASTM) or the Environmental Protection Agency (EPA), or other applicable standards approved by the administrative authority.

The borings and geotechnical and laboratory tests were conducted according to the requirements set forth in LAC 33:VII.709.C.

- d. The subsurface soils and groundwater conditions at Type II landfarms shall be characterized by a licensed engineer with expertise in geotechnical engineering and geohydrology or by a geologist with expertise in these fields. The characterization shall meet the following guidelines:
 - i. the number of borings shall be sufficient to reflect the subsurface soils and groundwater conditions for the facility;
 - ii. all boreholes shall extend to a depth of at least 30 feet below the lowest point of the zone of incorporation;
 - iii. all borings shall be continuously sampled to at least 30 feet below the base of the zone of incorporation with the use of thin wall and/or split spoon devices or similar devices;
 - iv. borings, geotechnical field tests, and laboratory tests shall be conducted according to the standards of the American Society for Testing and Materials (ASTM) or the Environmental Protection Agency (EPA) or other applicable standards approved by the administrative authority.

Not Applicable. This application is for a proposed Type I facility.

2. Units of a facility located in a seismic impact zone which have not received waste prior to October 9, 1993, shall be designed and operated so that all containment



structures, including liners, leachate collection systems, and surface water control systems, can withstand the stresses caused by the maximum horizontal acceleration in lithified earth material for the site.

There are no known faults within the facility or within a one mile of the perimeter of the facility. A review of available published literature, including the 1984 Geologic Map of Louisiana (C.C. Groat, Director, Louisiana State Geological Survey), did not reveal data on faulting near the facility. Over 50 soil borings have been conducted at the facility and faults have not been noted within the facility.

- 3. Facilities shall not be located in an unstable area unless the permit holder or applicant can demonstrate that the facility is designed to ensure the integrity of structural components, such as liners, leak-detection systems, leachate collection, treatment and removal systems, final covers, run-on/runoff systems (or any other component used in the construction and operation of the facility that is necessary for the protection of human health or the environment). In determining whether an area is unstable, the permit holder or applicant must consider, at a minimum, the following factors:
 - a. on-site or local soil conditions that may result in significant differential settling;
 - b. on-site or local geologic or geomorphological features; and
 - c. on-site or local human-made features or events (both surface and subsurface).

Not Applicable. The Rodemacher Power Station is not located in an unstable area.

D. Implementation Plans

1. All facilities shall have implementation plans.

Cleco has developed an Implementation Plan. Please see Appendix H for details.

2. The implementation plan must include a plan for closing and upgrading existing operating areas if the application is for expansion of a facility or construction of a replacement facility.

Not applicable. This application is for a proposed facility and does not include the expansion of an existing facility or construction of a replacement facility.



E. Groundwater Monitoring

1. Groundwater Monitoring System

Appendix F contains a comprehensive Groundwater Sampling and Analysis Plan for the RPS site, which includes the information required below. Cleco intends to utilize a single system for monitoring the ash management unit and leachate collection pond, along with the existing ash management facilities at the RPS.

- a. At each facility, a groundwater-monitoring system must be installed that consists of a sufficient number of wells, installed at appropriate locations and depths, to yield groundwater samples from the uppermost aquifer (and the uppermost water-bearing permeable zone which will yield sufficient quantities of water for sampling if different from the uppermost aquifer and if deemed necessary by the administrative authority for adequate groundwater monitoring at the facility) that:
 - i. represent the quality of the background groundwater that has not been affected by leakage from a unit; and

The groundwater monitoring system will consist of 12 monitoring wells that will surround the Ash Management Area and adjacent solid waste facilities. The wells are for the intended purpose of monitoring the uppermost aquifer. Monitoring wells W-2 and W-22 are upgradient wells that have not been affected by leakage from the units and, therefore, represent the quality of background groundwater. Please refer to the Groundwater Sampling and Analysis Plan and Exhibit 1 of that document presented in Appendix F.

ii. represent the quality of groundwater passing the relevant point of compliance. For the purposes of these regulations, the relevant point of compliance is the vertical surface which is located no more than 150 meters downgradient from the unit(s) being monitored and extends down into the uppermost aquifer underlying the facility and any other permeable zones being monitored. The relevant point of compliance must be on property owned or controlled by the permit holder and must be selected and subject to the approval of the administrative authority based on at least the following factors:

(a). hydrological characteristics of the facility and the surrounding land;

As described previously, the Rodemacher Power Station is situated across two different geomorphologic features along the west bank of the Red River, the topographically higher Intermediate Terraces of Pleistocene age and lower alluvium and natural levee deposits of Holocene age.

Solid Waste Permit Application – Type I Landfill and Leachate Collection Pond

The RPS is located near Lake Rodemacher, a man-made lake, owned and managed by Cleco, for use as a cooling water source and for heat dissipation purposes. Lake Rodemacher was formed by damming Boyce Branch and Boggy Bayou in 1972. Bayou Castor, Odom Creek, Campbell Creek, Horns Creek, White Branch, and Boyce Branch currently flow into Lake Rodemacher comprising a 34 square mile drainage basin on the highest elevations of the Pleistocene Intermediate Terrace. These streams also move stormwater during heavy rainfall events. The lake discharges at the spillway, at an elevation of 100 feet mean sea level, to Bayou Jean de Jean, which in turn discharges to the Red River. Runoff from the lower area to the east and southeast also drains into Bayou Jean de Jean and the Red River.

(b).volume and physical and chemical characteristics of the leachate;

The proposed facility will handle the ash material generated during the operation and maintenance of the two CFB utility boilers that will comprise Unit 3. The two boilers will operate on the combustion of solid fuel (ie, pet coke, coal, or a blend) with limestone added with the solid fuel to enhance the circulation within the combustion chamber of each boiler. Typical analyses of the ash generated from the combustion of either pet coke or coal in addition to that for limestone is provided below.

• Typical Pet Coke Ash Analysis

Silica	35.6
Ferric Oxide	7.75
Alumina	8.62
Titanic Oxide	0.63
Calcium Oxide	14.13
Magnesia	4.47
Sulfur Trioxide	20.48
Potassium Oxide	1.3
Sodium Oxide	4.79
Phosphorous Pentoxide	0.14
Undetermined	2.09
Total	100.00



• Typical Coal Ash Analysis

Silica	40.0
Ferric Oxide	22.00
Alumina	20.00
Titanic Oxide	1.00
Calcium Oxide	3.00
Magnesia	0.00
Sulfur Trioxide	0.00
Potassium Oxide	1.75
Sodium Oxide	1.50
Phosphorous Pentoxide	0.30
Undetermined	10.45
Total	100.00

• Typical limestone Analysis

Total	100
Moisture	4.5
Ash	3.5
CaO	0
$MgCO_3$	1
CaCO ₃	95

The silica and alumina contents of the ash are not soluble and are not expected to leach out from the ash material. Ferric oxide and magnesia have a slight potential to leach out. The other components of the ash material have a high potential to form either hydroxides or acids within the leachate generated in the landfill. Depending on the concentrations of each, the hydroxides and acids will react to form mainly molecules of water.

The peak daily leachate generated for any given cell will be 7.4 acre feet. The peak annual leachate generated for the entire site is 62.4 acre feet.



(c). quantity, quality, and direction of flow of groundwater;

The quantity and direction of groundwater flow in the uppermost aquifer underlying the site, is discussed in the response given for LAC 33:VII.521.E.1.a.iii.

Much of the groundwater in the upland Pleistocene deposits is under water table conditions, partly because the deposits are sandy and partly because they are thoroughly drained by numerous deeply cut stream valleys. Where streams are not numerous or deeply cut, and where the overlying clay layer is locally thick, artesian conditions may occur.

The specific capacities of the upland wells range from 5 to 20 gallons per foot of drawdown. For a given yield, the drawdown of the Pleistocene wells is therefore lower than that of deeper Miocene wells. The relatively small thickness of water-bearing sandy material, however, has limited the yield to a range of 100 to 260 gallons per minutes. For this reason the upland Pleistocene aquifers are not extensively used.

The dissolved mineral content of water from upland Pleistocene wells is very low, as indicated on Table 2. Pleistocene well water is generally acidic, having a pH of approximately 5.8, and is difficult to use because of its corrosiveness. While the water temperature in the Pleistocene wells averages 60° F, the shallow depth of these aquifers causes the temperature to have a measurable seasonal variation.

Water in the alluvial aquifers is imperfectly confined because of the great differences in permeability between the overlying fine silty material and the sand. The static water level in most areas is within 20 feet of the ground surface and fluctuates in response to change in the river stage. On the average, wells screened in the Red River Valley alluvium are capable of higher sustained yield than wells in the upland Pleistocene and deeper Miocene aquifers. Four irrigation wells in the vicinity of the RPS have normal yields from 250 to 1,700 gpm.

The water in alluvial aquifers, as shown in Table 2, has a high mineral content and is not considered to be desirable for drinking purposes. It may, however, be considered for irrigation. Water temperatures in the alluvial aquifers are very similar to those in the upland Pleistocene aquifers described above.



(d).proximity and withdrawal rate of the groundwater users;

According to the Louisiana Department of Transportation and Development (LDOTD) Registered Water Well Database, there are no public water supply wells and no domestic wells within a 1-mile radius of the RPS completed in either the upland Pleistocene Terrace deposits or the alluvial aquifer. There are eleven domestic water wells within a 1-mile radius of the RPS completed at depths ranging from 149 to 419 feet, reaching total depth in aquifers deeper than the uppermost aquifer found at the site.

(e). availability of alternative drinking water supplies;

The Red River is a designated drinking water aquifer, as well as, the deeper Miocene aquifers. Groundwater from the Miocene aquifers yield soft, alkaline, sodium bicarbonate water of moderate total mineralization (Water Resources of Rapides Parish, Water Resources Bulletin No. 8, Louisiana Department of Public Works, April 1966).

(f). existing quality of the groundwater, including other sources of contamination and their cumulative impacts on the groundwater, and whether the groundwater is currently used or reasonably expected to be used for drinking water;

Groundwater samples are collected and analyzed from the existing monitoring wells installed in the uppermost aquifer for the existing Fly Ash and Bottom Ash Ponds. These wells are currently analyzed for all or most of the following parameters: pH, temperature, specific conductance, alkalinity, sulfate, total dissolved solids (TDS), copper, iron, calcium and chloride.

A review of 2004 analytical results for wells W-2 and W-5 (completed in the Pleistocene Terrace deposits) indicates pH ranged from 4.24 to 5.30 standard units. Temperature ranged from 18.7 to 22.3° C. Specific conductance ranged from 54.0 to 59.5 micromhos (μmhos). Alkalinity ranged from 17.4 to 90 milligrams per liter (mg/L). TDS ranged from 80 to 215 mg/L.

Analytical results for the same period in 2004 for wells W-3 and W-4, completed in the Holocene alluvial deposits show a marked difference. pH ranged from 6.13 to 7.16 standard units. Temperature ranged from 18.2 to 21.8° C. Alkalinity ranged from 227 to 388 mg/L. TDS ranged from 327 to 823 mg/L.

The groundwater in the uppermost aquifer (Pleistocene or Alluvial) is not currently used or reasonably expected to be used for drinking water purposes because of either corrosiveness or high mineral content.



(g). public health, safety, and welfare effects; and

There are no perceived public health, safety, or welfare effects existing that would impact the groundwater quality.

(h).practicable capability of the owner or operator.

The point of compliance was established by evaluating the criteria listed above.

b. Location of Wells

- i. Enough monitoring wells must be located hydraulically upgradient of the facility to yield samples that represent background groundwater quality as required in Subparagraph E.1.a of this Section.
- ii. A minimum of one upgradient well per zone monitored is required.
- iii. Monitoring wells other than upgradient of the facility may be sampled for background groundwater quality if:
 - (a). hydrologic conditions do not allow the permit holder to determine which wells are hydraulically upgradient; or
 - (b).sampling at other wells will provide an indication of background groundwater quality that is more representative than sampling of upgradient wells.
- iv. Enough monitoring wells must be located hydraulically downgradient from the facility to yield samples that are representative of the groundwater passing the relevant point of compliance. At least two downgradient wells per zone monitored must be provided. The downgradient wells must be screened in the same zone as the upgradient wells. Spacing between downgradient wells shall not exceed 800 feet.
- v. The number, spacing, and depths of monitoring wells shall be determined based upon site-specific technical information that must include thorough characterization of:
 - (a). aquifer thickness, groundwater flow rate, groundwater flow direction including seasonal and temporal fluctuations in groundwater flow; and
 - (b).saturated and unsaturated geologic units and fill materials overlying the uppermost aquifer, materials comprising the uppermost aquifer, and materials comprising the confining unit defining the lower boundary of the uppermost aquifer; including, but not limited to:



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thickness, stratigraphy, lithology, hydraulic conductivities, porosities, and effective porosities.

- vi. The administrative authority will consider for approval multi-unit groundwater monitoring systems, provided these systems meet the requirements of Paragraph E.1 of this Section and will be as protective of human health and the environment as groundwater monitoring systems for individual units.
- vii. The administrative authority may modify the requirements of Subparagraph E.l.b of this Section for site-specific considerations in approving groundwater monitoring systems for ditches.

Appendix F contains a comprehensive Groundwater Sampling and Analysis Plan. This document includes a monitoring well location map, presented as Figure 19.

c. Well Construction

i. Well construction shall be in accordance with the "Water Wells Rules, Regulations, and Standards, State of Louisiana" (LAC 70:XIII) as adopted by the Louisiana Department of Transportation and Development, Water Resources Section.

Cleco will construct all of the monitoring wells according to the standards set in "Water Wells Rules, Regulations, and Standards, State of Louisiana" (LAC 70:XII) and the *Construction of Geotechnical Boreholes and Groundwater Monitoring Systems Handbook*, prepared by the Louisiana Department of Environmental Quality and Louisiana Department of Transportation and Development, December 2000.

ii. Construction of monitoring wells for facilities regulated by the department shall require approval of the administrative authority prior to construction.

All necessary approvals will be obtained by Cleco before construction of the monitoring wells begins.

- iii. In addition to the construction standards set forth in the "Water Wells Rules and Regulations," the following is required:
 - (a). all wells must have protective casing with locking covers and a secure locking device in place;

Cleco will comply with all of the necessary design regulations.



(b).all wells must have guard posts firmly anchored outside the well slab, but not in contact with the slab;

Cleco will comply with all of the necessary design regulations.

(c). the maximum allowable screen length must not exceed 10 feet;

Cleco will comply with all of the necessary design regulations.

(d). the borehole diameter must allow at least three inches between the well casing and the borehole wall;

Cleco will comply with all of the necessary design regulations.

- (e). a sign or plate must be permanently affixed to the protective well casing and must prominently display:
 - (i). well identification number;

Cleco will comply with all of the necessary design regulations.

(ii). identification of well as upgradient or downgradient;

Cleco will comply with all of the necessary design regulations.

(iii). elevation of top of well casing in relation to mean sea level;

Cleco will comply with all of the necessary design regulations.

- (iv). screen depth in relation to mean sea level; and

 Cleco will comply with all of the necessary design regulations.
- (v). date of well installation and any subsequent repairs.

Cleco will comply with all of the necessary design regulations.

- d. Post Construction. Within 90 days after construction of the wells, the permit holder or applicant must submit to the Office of Environmental Services, Permits Division well-completion details to verify that the wells were constructed according to the approved specifications and to document construction procedures. A permit modification fee will not be required. Well-completion details should include, but are not limited to:
 - i. daily field notes documenting construction procedures and any unusual occurrences such as grout loss, etc.;



Cleco will comply with all of the necessary reporting requirements.

ii. boring log for each well including surface elevation(s) with respect to mean sea level or comparable reference points;

Cleco will comply with all of the necessary reporting requirements.

iii. as-built diagrams for each well showing all pertinent features such as elevation of reference point for measuring groundwater levels, screen interval, and ground surface. If features change from the approved plans, then a permit-modification request must be submitted in accordance with LAC 33:VII.517.

Cleco will comply with all of the necessary reporting requirements.

- e. Plugging and Abandonment of Monitoring Wells and Geotechnical Borings
 - i. The "Water Wells Rules and Regulations, State of Louisiana" (LAC 70:XIII), as adopted by the Louisiana Department of Transportation and Development, Water Resource Section, shall apply to all plugging and abandonment of wells and holes including, but not limited to, observation wells, monitoring wells, piezometer wells, leak-detection wells, assessment wells, recovery wells, abandoned pilot holes, test holes, and geotechnical boreholes.

Cleco will comply with all of the necessary well plugging and abandonment requirements. All wells, piezometers, and soil borings will be plugged and abandoned in accordance with LAC 70:XIII and the Construction of Geotechnical Boreholes and Groundwater Monitoring Systems Handbook, prepared by the Louisiana Department of Environmental Quality and Louisiana Department of Transportation and Development, December 2000.

- ii. In addition to the standards in LAC 70:XIII, the following standards shall apply to plugging and abandonment:
 - (a). For any well, the primary method of plugging and abandonment shall be removal of the well's casing and other components of the well including but not limited to the screen, grout, bentonite seal, filter pack, concrete slab, protective casing, guard posts, and native soil in immediate contact with the grout and subsequent installation of cement-bentonite grout, from the bottom of the resulting borehole to the ground surface using the tremie method.

Cleco will comply with all of the necessary well plugging and abandonment requirements.



(b). In areas where all or a part of the well's casing and other components of the well cannot be plugged and abandoned in accordance with the procedure stated in Subclause E.1.e.ii.(a) of this Section, the well shall

procedure stated in Subclause E.I.e.ii.(a) of this Section, the well shall be plugged and abandoned by installation of cement-bentonite grout inside the well's casing, from the bottom of the well to the ground surface, provided that the annular seal is demonstrated to be adequately sealed and the following items are submitted:

(i). supporting documentation, prior to plugging the well that demonstrates that removal of all or part of the well's casing and other components of the well in accordance with the procedure stated in Subparagraph E.1.e of this Section, will be detrimental to the environment; and/or

Cleco will comply with all of the necessary requirements.

(ii).certification and supporting documentation by a qualified professional that shows that removal of the well's casing was attempted and that continued attempts to remove all or a part of the well's casing and other components of the well as stated in Subparagraph E.1.e of this Section, would have been detrimental to the environment.

Cleco will comply with all of the necessary requirements.

(c). After plugging and abandoning a well, all surface features of the well including but not limited to the concrete slab, guard posts and protective casing, shall be dismantled and disposed of in an environmentally sound manner and the surface shall be restored to its original condition.

Cleco will comply with all of the necessary requirements.

(d). The permit holder must notify the Office of Environmental Services, Permits Division of the plugging and abandonment of monitoring wells or geotechnical borings and keep records of such abandonments.

Cleco will comply with all of the necessary requirements.

f. Monitoring wells, piezometers, and other measurement, sampling, and analytical devices must be operated and maintained so that they perform to design specifications throughout the life of the monitoring program.

All of the necessary equipment will be routinely inspected and repaired to ensure continuous operation that will meet the design specifications.

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2. Groundwater Sampling and Analysis Requirements

a. A groundwater-monitoring program must be implemented at each facility which includes consistent sampling and analysis procedures that ensure monitoring results are representative of groundwater quality at the background and downgradient well locations.

Cleco will comply with all of the necessary requirements. Please refer to the Groundwater Sampling and Analysis Plan presented in Appendix F.

- b. A groundwater sampling and analysis plan must be prepared which meets the requirements of Subparagraph E.2.a of this Section as well as the requirements of LAC 33:VII.3005, and which includes procedures and techniques for:
 - i. sample collection which ensures that collected samples are representative of the zone(s) being monitored and prevents cross-contamination of or tampering with samples;

Cleco will comply with all of the necessary requirements. Please refer to the Groundwater Sampling and Analysis Plan located in Appendix F.

ii. sample preservation and shipment which ensure the integrity and reliability of the sample collected for analysis;

Cleco will comply with all of the necessary requirements. Please refer to the Groundwater Sampling and Analysis Plan located in Appendix F.

iii. chain of custody control; and

Cleco will comply with all of the necessary requirements. Please refer to the Groundwater Sampling and Analysis Plan located in Appendix F.

iv. quality-assurance/quality-control, including detection limits, precision and accuracy of analyses, field blanks, and laboratory spikes and blanks.

Cleco will comply with all of the necessary requirements. Please refer to the Groundwater Sampling and Analysis Plan located in Appendix F.

- c. The sampling and analysis plan must also include the:
 - selection of parameters or constituents to be sampled and analyzed during detection monitoring and justification for parameters or constituents where applicable;
 - ii. identification of analytical procedures to be followed (reference source of analytical method);



- iii. sampling frequency during the detection monitoring program;
- iv. statistical method to be used in evaluating the groundwater-monitoring data for each groundwater parameter or constituent sampled at each monitoring well; and
- v. practical quantitation limit for each parameter or constituent.

Cleco will comply with all of the necessary requirements. Please refer to the Groundwater Sampling and Analysis Plan located in Appendix F.

d. Background groundwater quality must be established for the facility in a hydraulically upgradient well(s), or other well(s) as provided in Clause E.1.b.iii of this Section, for each groundwater parameter or constituent.

Cleco will comply with all of the necessary requirements. Appendix F contains a comprehensive Groundwater Sampling and Analysis Plan.

e. Statistical Methods

- i. The number of samples collected to establish groundwater quality data must be consistent with the appropriate statistical procedures used.
- ii. One of the following statistical methods to be used in evaluating groundwater data must be specified in the sampling and analysis plan for each parameter or constituent to be monitored. The statistical test chosen shall be conducted separately for each parameter or constituent in each well:
 - (a).a parametric analysis of variance (ANOVA) followed by multiple comparisons procedures to identify statistically significant evidence of contamination. The method must include estimation and testing of the contrasts between each compliance well's mean and the background mean levels for each parameter or constituent;
 - (b).an analysis of variance (ANOVA) based on ranks followed by multiple comparisons procedures to identify statistically significant evidence of contamination. The method must include estimation and testing of the contrasts between each compliance well's median and the background median levels for each parameter or constituent;
 - (c). a tolerance or prediction interval procedure in which an interval for each parameter or constituent is established from the distribution of the background data, and the level of each parameter or constituent in each compliance well is compared to the upper tolerance or prediction limit;



- (d).a control chart approach that gives control limits for each parameter or constituent;
- (e). another statistical test method that meets the performance standards of Clause E.2.e.iii of this Section. The permit holder must place a justification for this alternative in the operating record and notify the administrative authority of the use of this alternative test. The justification must demonstrate that the alternative method meets the performance standards of Clause E.2.e.iii of this Section.

Cleco will comply with all of the necessary requirements. Appendix F contains a comprehensive Groundwater Sampling and Analysis Plan.

- iii. Any statistical method chosen under Clause E.2.e.ii of this Section shall comply with the following performance standards, as appropriate.
 - (a). The statistical method used to evaluate groundwater monitoring data shall be appropriate for the distribution of the parameters or constituents. If the distribution of the chemical parameters or constituents or hazardous parameters or constituents is shown by the permit holder to be inappropriate for a normal theory test, then the data should be transformed or a distribution-free theory test should be used. If the distributions for the parameters or constituents differ, more than one statistical method may be needed.
 - (b). If an individual well comparison procedure is used to compare an individual compliance well parameter or constituent concentration with background parameters or constituent concentrations or a groundwater protection standard, the test shall be done at a Type I error level no less than 0.01 for each testing period. If a multiple comparisons procedure is used, the Type I experiment wide error rate for each testing period shall be no less than 0.05; however, the Type I error of no less than 0.01 for individual well comparisons must be maintained. This performance standard does not apply to tolerance intervals, prediction intervals, or control charts.
 - (c). If a control chart approach is used to evaluate groundwater monitoring data, the specific type of control chart and its associated parameter or constituent values shall be protective of human health and the environment. The parameters or constituents shall be determined after considering the number of samples in the background data base, the data distribution, and the range of the concentration values for each parameter or constituent of concern.

- (d). If a tolerance interval or a predictional interval is used to evaluate groundwater monitoring data, the levels of confidence and, for tolerance intervals, the percentage of the population that the interval must contain, shall be protective of human health and the environment. These parameters or constituents shall be determined after considering the number of samples in the background data base, the data distribution, and the range of the concentration values for each parameter or constituent of concern.
- (e). The statistical method shall account for data below the limit of detection with one or more statistical procedures that are protective of human health and the environment. Any practical quantitation limit (pql) that is used in the statistical method shall be the lowest concentration level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions that are available to the facility.
- (f). If necessary, the statistical method shall include procedures to control or correct for seasonal and spatial variability as well as temporal correlation in the data.

Cleco will comply with all of the necessary requirements. Appendix F contains a comprehensive Groundwater Sampling and Analysis Plan.

- iv. The permit holder must determine whether or not there is a statistically significant increase over background values for each parameter or constituent required in the particular groundwater monitoring program that applies to the facility, as determined under Paragraph E.3, 4, or 8 of this Section.
 - (a). In determining whether a statistically significant increase has occurred, the permit holder must compare the groundwater quality of each parameter or constituent at each monitoring well designated pursuant to Clause E.1.a.ii of this Section to the background value of that parameter or constituent, according to the statistical procedures and performance standards specified under Clauses E.2.e.ii and iii of this Section.
 - (b). Within 90 days after the date of sampling, the permit holder must determine whether there has been a statistically significant increase over background at each monitoring well.

Cleco will comply with all of the necessary requirements. Appendix F contains a comprehensive Groundwater Sampling and Analysis Plan.

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3. Detection Monitoring Program

a. All Type I and II facilities must conduct a detection monitoring program as described in Paragraph E.3 of this Section.

Cleco will comply with all of the necessary requirements. Appendix F contains a comprehensive Groundwater Sampling and Analysis Plan.

b. Initial Sampling

i. For a new facility, monitoring wells must be sampled and the analytical data for a sampling event must be submitted to the Office of Environmental Assessment, Environmental Technology Division before waste is accepted.

Cleco will submit the initial monitoring results to the LDEQ before any waste is accepted in accordance with the above citation.

ii. For an existing facility with no wells in place at the time of the application submittal or at the time at which the facility becomes subject to these regulations, the analytical data shall be submitted to the Office of Environmental Assessment, Environmental Technology Division within 90 days after installation of the monitoring wells.

Not Applicable. This application is for a new facility.

iii. A minimum of four independent samples from each well (upgradient and downgradient) must be collected and analyzed during the first sampling event for a facility. Thereafter, at least one sample must be collected and analyzed at each well for each sampling event.

Cleco will comply with the initial four sample requirement for each well.

c. For the first year of monitoring and thereafter, sampling and analysis of all wells must be conducted every six months.

Cleco will comply with all of the necessary requirements. Appendix F contains a comprehensive Groundwater Sampling and Analysis Plan.

d. The groundwater monitoring program must be conducted for the life of the facility and for the duration of the post-closure care period of the facility which is specified in LAC 33:VII.711.F, 713.F, or 715.F. Groundwater monitoring may be extended beyond the period specified if deemed necessary by the administrative authority.

Cleco will comply with all of the necessary requirements. Appendix F contains a comprehensive Groundwater Sampling and Analysis Plan.



permit holder or applicant must submit four bound copies (8 1/2 by 11

- e. The permit holder or applicant must submit four bound copies (8 1/2 by 11 inches) of a report of all groundwater sampling results to the Office of Environmental Assessment, Environmental Technology Division no later than 90 days after each sampling event. The reports must be submitted on forms provided by the administrative authority and shall include at a minimum:
 - i. documentation of the chain of custody of all sampling and analyses;

Cleco will include the necessary documentation with the groundwater sampling results.

ii. scaled potentiometric surface maps showing monitoring-well locations, groundwater elevations with respect to mean sea level for each stratum monitored;

Cleco will include the necessary documentation with the groundwater sampling results.

iii. isopleth map for each well of all parameters or constituents or plots by well of concentration of parameters or constituents versus time;

Cleco will include the necessary documentation with the groundwater sampling results.

iv. for the initial sampling only, a boring log for each well showing the screened interval and ground surface elevation with respect to mean sea level; and

Cleco will include the necessary documentation with the groundwater sampling results.

v. a statement of whether a statistically significant difference in concentration over background concentrations is detected.

Cleco will include a statement of any statistically significant difference in concentration over background levels with the groundwater sampling results.

- f. If a statistically significant increase over background concentrations is determined for one or more parameters or constituents required to be monitored, the permit holder must:
 - i. notify the administrative authority in accordance with the Notification Regulations and Procedures for Unauthorized Discharge (LAC 33:I.Subpart 2);



Cleco will comply with the notification requirements of LAC 33:I.Subpart 2 when there is a significant statistical increase over background levels.

ii. submit to the Office of Environmental Assessment, Environmental Technology Division, within 14 days after the determination is made, a report that identifies which parameters or constituents were determined to have shown statistically significant changes from background levels; and

Cleco will comply with the necessary reporting requirements when there is a significant statistical increase over background levels.

- iii. within 90 days after the determination is made:
 - (a) initiate an assessment monitoring program for the facility meeting the requirements of Paragraph E.4 or 8 of this Section; or

Cleco will comply with an assessment monitoring program as required in Paragraph E.4 or 8 of this section.

(b).submit a report to the Office of Environmental Assessment, Environmental Technology Division demonstrating that a source other than the facility being sampled caused the contamination or that the statistically significant increase resulted from an error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality.

Cleco will submit reports when necessary to demonstrate that a statistically significant increase is a result of errors in sampling, analysis, statistical evaluation, or natural variation in groundwater quality.

iv. If the administrative authority approves this demonstration in Subclause E.3.f.iii.(b) of this Section in writing, the permit holder may continue the detection monitoring program. If the administrative authority does not approve the demonstration in writing, the permit holder must establish an assessment monitoring program meeting the requirements of Paragraph E.4 of this Section within 90 days after the determination in Subparagraph E.3.f of this Section is made.

Cleco will comply with the above citation as needed.

- g. Detection Monitoring Parameters or Constituents
 - i. During detection monitoring, Type I landfills and Type I surface impoundments (except Type I landfills that are also Type II landfills and Type I surface impoundments that are associated with such Type I landfills)

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shall monitor for at least 10 chemical parameters or constituents, both inorganic and organic, which are indicator parameters or constituents or reaction products of the waste and that provide a reliable indication of the presence of contaminants in the groundwater. The administrative authority may reduce the number of parameters if appropriate based on site-specific and waste-specific consideration. Selection of these parameters or constituents is subject to the approval of the administrative authority and must be based on the following factors:

- (a).types, quantities, and concentrations of constituents in the wastes disposed of at the facility;
- (b).mobility, stability, and persistence of waste constituents or their reaction products in the unsaturated zone beneath the facility;
- (c). detectability of indicator parameters, waste constituents, or their reaction products in the groundwater; and
- (d).concentrations or values and coefficients of variation of the proposed monitoring parameters or constituents in the background groundwater at the facility.

Cleco will comply with all of the necessary requirements. Appendix F contains a comprehensive Groundwater Sampling and Analysis Plan.

ii. During detection monitoring, Type II landfills, including Type II surface impoundments associated with Type II landfills, shall be monitored for all the parameters or constituents listed in LAC 33:VII.3005.Table 1.

Not applicable. This application is for a Type I facility.

iii. During detection monitoring, Type I landfarms, including runoff and containment areas (ROCAs) or surface impoundments associated with Type I landfarms, shall be monitored for the same parameters or constituents as provided for Type II landfarms in Clause E.3.g.iv of this Section and also for at least six parameters or constituents, both organic and inorganic, which are intrinsic to the wastes being disposed at the facility. The intrinsic parameters or constituents shall be selected on the basis of the factors in Subclauses E.3.g.i.(a)-(d) of this Section and shall be subject to the approval of the administrative authority.

Not applicable. This application is for a Type I facility that includes a landfill and surface impoundment, not a landfarm.



iv. During detection monitoring, Type II landfarms which receive domestic sewage sludge and any runoff and containment areas (ROCAs) or surface impoundments associated with such landfarms shall be monitored for five-day biochemical oxygen demand (BOD₅), fecal coliform, total dissolved solids (TDS), nitrate, total Kjeldahl nitrogen, and polychlorinated biphenyls (PCBs), if applicable.

Not applicable. This application is for a Type I facility.

v. Type II surface impoundments which receive domestic sewage sludge shall be monitored for the same parameters or constituents as provided for Type II landfarms in Clause E.3.g.iv of this Section.

Not applicable. This application is for a Type I facility.

vi. The administrative authority may waive or require additional parameters or constituents, based on site-specific or waste-specific information.

Cleco will comply with any additionally required parameter or constituent that may be necessary.

- 4. Assessment Monitoring Program for Type II Landfills and Associated Type II Surface Impoundments
 - a. An assessment monitoring program as described in Paragraph E.4 of this Section is required to be conducted at Type II landfills and associated Type II surface impoundments whenever a statistically significant increase over background concentrations is detected for one or more of the parameters or constituents sampled and analyzed during the detection monitoring program.
 - b. Within 90 days of triggering an assessment monitoring program, and annually thereafter, the permit holder must sample and analyze the groundwater for all the parameters or constituents identified in LAC 33:VII.3005. Table 2. A minimum of one sample from each downgradient well must be collected and analyzed during each sampling event. For any parameter or constituent detected in the downgradient wells as a result of the complete LAC 33:VII.3005. Table 2 analysis, a minimum of four independent samples from each well (background and downgradient) must be collected and analyzed to establish background for the parameters or constituents. The administrative authority:
 - i. may specify an appropriate subset of the wells to be sampled and analyzed for LAC 33:VII.3005. Table 2 parameters or constituents during assessment monitoring; and

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- ii. may delete any of the LAC 33:VII.3005. Table 2 parameters or constituents for a facility if it can be shown that the omitted parameters or constituents are not reasonably expected to be in or derived from the waste contained in the unit.
- c. No later than 90 days after the completion of the initial or subsequent sampling events for all LAC 33:VII.3005. Table 2 parameters or constituents required in Subparagraph E.4.b of this Section, the permit holder must submit a report to the Office of Environmental Assessment, Environmental Technology Division identifying the LAC 33:VII.3005. Table 2 parameters or constituents that have been detected. No later than 180 days after completion of the initial or subsequent sampling events for all LAC 33:VII.3005. Table 2 parameters or constituents required in Subparagraph E.4.b of this Section, the permit holder must:
 - i. resample all wells and analyze for all parameters or constituents in LAC 33:VII.3005. Table 1 and for those parameters or constituents in LAC 33:VII.3005. Table 2 that are detected in response to Subparagraph E.4.b of this Section. At least one sample must be collected from each well (background and downgradient) during these sampling events. This sampling must be repeated semiannually thereafter;
 - ii. establish background groundwater concentrations for any parameter or constituent detected pursuant to Subparagraph E.4.b or c of this Section; and
 - iii. establish groundwater protection standards for all parameters or constituents detected pursuant to Subparagraph E.4.b or c of this Section. The groundwater protection standards shall be established in accordance with Subparagraph E.4.g of this Section.
- d. If the concentrations of all LAC 33:VII.3005. Table 2 parameters or constituents are shown to be at or below background values, using the statistical procedures in Subparagraph E.2.e of this Section, for two consecutive sampling events, the permit holder must notify the Office of Environmental Assessment, Environmental Technology Division, and upon written approval of the administrative authority, may return to detection monitoring.
- e. If the concentrations of any LAC 33:VII.3005. Table 2 parameters or constituents are above background values, but all concentrations are below the groundwater protection standard established under Subparagraph E.4.g of this Section, using the statistical procedures in Subparagraph E.2.e of this Section, the permit holder must continue assessment monitoring.



- f. If one or more LAC 33:VII.3005. Table 2 parameters or constituents are detected at statistically significant levels above the groundwater protection standard established under Subparagraph E.4.g of this Section, in any sampling event, using the statistical procedures in Subparagraph E.2.e of this Section, the permit holder must, within 14 days of the determination, notify all appropriate local government officials and submit a report to the Office of Environmental Assessment, Environmental Technology Division identifying the LAC 33:VII.3005. Table 2 parameters or constituents which have exceeded the groundwater protection standard. The permit holder must also:
 - i. within 90 days after the determination is made, submit four bound copies (8 1/2 x 11 inches) of an assessment plan to the Office of Environmental Assessment, Environmental Technology Division, as well as any necessary permit modification, to the Office of Environmental Services, Permits Division that provides for:
 - (a). characterization of the nature and extent of the release by installing and sampling additional monitoring wells as necessary;
 - (b).installation of at least one additional monitoring well at the facility boundary in the direction of the contaminant migration and sampling of this well in accordance with Clause E.4.c.ii of this Section; and
 - (c). a schedule for implementing the plan;
 - ii. notify all persons who own the land or reside on the land that directly overlies any part of the plume of contamination if contaminants have migrated off site as indicated by the sampling of the wells in accordance with Clause E.4.f.i of this Section; and
 - iii. upon consultation with and approval of the administrative authority, implement any interim measures necessary to ensure the protection of human health and the environment. Interim measures should, to the greatest extent practicable, be in accordance with LAC 33:I.Chapter 13 and be consistent with the objectives of and contribute to the performance of any remedy that may be required pursuant to Paragraph E.6 of this Section. The following factors must be considered by a permit holder in determining whether interim measures are necessary:
 - (a). time required to develop and implement a final remedy;
 - (b).actual or potential exposure of nearby populations or environmental receptors to hazardous parameters or constituents;



- (c). actual or potential contamination of drinking water supplies or sensitive ecosystems;
- (d).further degradation of the groundwater that may occur if remedial action is not initiated expeditiously;
- (e). weather conditions that may cause hazardous parameters or constituents to migrate or be released;
- (f). risk of fire or explosion, or potential for exposure to hazardous parameters or constituents as a result of an accident or failure of a container or handling system; and
- (g). other situations that may pose threats to human health and the environment.
- iv. initiate an assessment of corrective measures as required by Paragraph E.5 of this Section; or
- v. may submit a report to the Office of Environmental Assessment, Environmental Technology Division demonstrating that a source other than the facility being sampled caused the contamination, or the statistically significant increase resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. If the administrative authority approves this demonstration in writing, the permit holder must continue assessment monitoring at the facility in accordance with Paragraph E.4 of this Section, or may return to detection monitoring if the LAC 33:VII.3005.Table 2 parameters or constituents are below background as specified in Subparagraph E.4.d of this Section. Until such a written approval is given, the permit holder must comply with Subparagraph E.4.f of this Section, including initiating an assessment of corrective action measures.
- g. The permit holder must establish a groundwater protection standard for each LAC 33:VII.3005.Table 2 parameter or constituent detected in the groundwater. The groundwater protection standard shall be in accordance with LAC 33:I.Chapter 13 and shall be:
 - i. for parameters or constituents for which a maximum contaminant level (MCL) has been promulgated under the federal Safe Drinking Water Act, (the MCL for that parameter or constituent);
 - ii. for parameters or constituents for which the state of Louisiana has promulgated a MCL, the MCL for that parameter or constituent;



- iii. for parameters or constituents for which MCLs have not been promulgated, the background concentration for the parameter or constituent established from wells in accordance with Paragraph E.4 of this Section, or the administrative authority may allow the standard to be set in accordance with LAC 33:I.Chapter 13 on a case-by-case basis;
- iv. for Type I facilities, the administrative authority may allow the standard for all parameters or constituents to be set in accordance with LAC 33:I.Chapter 13 on a case-by-case basis;
- v. for parameters or constituents for which the background level is higher than the MCL identified under Clause E.4.g.i or ii of this Section, the background concentration for the parameter or constituent established from wells in accordance with Paragraph E.4 of this Section; or
- vi. the administrative authority may establish a more stringent groundwater protection standard if necessary to protect human health or the environment.

Not applicable. This application is for a type I facility.

- 5. Assessment of Corrective Measures at Type II Landfills and Associated Surface Impoundments
 - a. Within 90 days of finding that any of the parameters or constituents listed in LAC 33:VII.3005. Table 2 have been detected at a statistically significant level exceeding the groundwater protection standards defined under Subparagraph E.4.g of this Section, the permit holder must initiate an assessment of corrective measures.
 - b. The permit holder must continue to monitor in accordance with the assessment monitoring program throughout the period of corrective action, as specified in Paragraph E.4 of this Section.
 - c. The assessment shall include an analysis of the effectiveness of potential corrective measures in meeting all of the requirements and objectives of the remedy as described under Paragraph E.6 of this Section addressing at least the following:
 - i. performance, reliability, ease of implementation, and potential impacts of appropriate potential remedies, including safety impacts, cross-media impacts, and control of exposure to any residual contamination;
 - ii. time required to begin and complete the remedy;



- iii. costs of remedy implementation; and
- iv. institutional requirements such as state or local permit requirements or other environmental or public health requirements that may substantially affect implementation of the remedy.
- d. The results of the corrective measures assessment must be discussed by the permit holder, in a public meeting prior to the selection of remedy, with interested and affected parties.

Not applicable. This application is for a Type I facility.

- 6. Selection of Remedy and Corrective Action Plan at Type II Landfills and Associated Surface Impoundments
 - a. Based on the results of the corrective measures assessment conducted under Paragraph E.5 of this Section, the permit holder must select a remedy that, at a minimum, meets the standards of Subparagraph E.6.b of this Section. Within 180 days after initiation of the corrective measures assessment required in Paragraph E.5 of this Section, the permit holder must submit four bound copies (8 1/2 by 11 inches) of a corrective-action plan to the Office of Environmental Assessment, Environmental Technology Division, describing the selected remedy, which will meet the requirements of Subparagraphs E.6.b-d of this Section and be in accordance with LAC 33:I.Chapter 13. The corrective-action plan must also provide for a corrective-action groundwater monitoring program as described in Clause E.7.a.i of this Section.

b. Remedies must:

- i. be protective of human health and the environment;
- ii. attain the groundwater protection standard as specified pursuant to Subparagraph E.4.g of this Section;
- iii. control the source(s) of releases so as to reduce or eliminate, to the maximum extent practicable, further releases of LAC 33:VII.3005.Table 2 parameters or constituents into the environment that may pose a threat to human health or the environment; and
- iv. comply with standards for management of wastes as specified in Subparagraph E.7.g of this Section;
- c. In selecting a remedy that meets the standards of Subparagraph E.6.b of this Section, the permit holder shall consider the following evaluation factors:

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- i. long- and short-term effectiveness and protectiveness of the potential remedy(s), along with the degree of certainty that the remedy will prove successful based on consideration of the following:
 - (a). magnitude of reduction of existing risks;
 - (b).magnitude of residual risks in terms of likelihood of further releases due to waste remaining following implementation of a remedy;
 - (c). type and degree of long-term management required, including monitoring, operation, and maintenance;
 - (d).short-term risks that might be posed to the community, workers, or the environment during implementation of such a remedy, including potential threats to human health and the environment associated with excavation, transportation, and redisposal of containment;
 - (e). time until full protection is achieved;
 - (f). potential for exposure of humans and environmental receptors to remaining wastes, considering the potential threat to human health and the environment associated with excavation, transportation, redisposal, or containment;
 - (g).long-term reliability of the engineering and institutional controls; and
 - (h).potential need for replacement of the remedy.
- ii. effectiveness of the remedy in controlling the source to reduce further releases based on consideration of the following factors:
 - (a). extent to which containment practices will reduce further releases;
 - (b).extent to which treatment technologies may be used.
- iii. ease or difficulty of implementing a potential remedy(s) based on consideration of the following types of factors:
 - (a). degree of difficulty associated with constructing the technology;
 - (b).expected operational reliability of the technologies;
 - (c). need to coordinate with and obtain necessary approvals and permits from other agencies;
 - (d).availability of necessary equipment and specialists; and

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- (e). available capacity and location of needed treatment, storage, and disposal services.
- iv. practicable capability of the permit holder, including a consideration of the technical and economic capability; and
- v. degree to which community concerns are addressed by a potential remedy(s).
- d. The permit holder shall specify as part of the selected remedy a schedule(s) for initiating and completing remedial activities. Such a schedule must require the initiation of remedial activities within a reasonable period of time. The permit holder must consider the following factors in determining the schedule of remedial activities:
 - extent and nature of contamination;
 - ii. practical capabilities of remedial technologies in achieving compliance with groundwater protection standards established under Subparagraph E.4.g of this Section and other objectives of the remedy;
 - iii. availability of treatment or disposal capacity for wastes managed during implementation of the remedy;
 - iv. desirability of utilizing technologies that are not currently available, but which may offer significant advantages over already available technologies in terms of effectiveness, reliability, safety, or ability to achieve remedial objectives;
 - v. potential risks to human health and the environment from exposure to contamination prior to completion of the remedy;
 - vi. resource value of the aquifer including:
 - (a). current and future uses;
 - (b).proximity and withdrawal rate of users;
 - (c). groundwater quantity and quality;
 - (d).potential damage to wildlife, crops, vegetation, and physical structures caused by exposure to parameters or constituents;
 - (e). hydrogeologic characteristic of the facility and surrounding land;
 - (f). groundwater removal and treatment costs; and



(g).cost and availability of alternative water supplies;

vii. practicable capability of the permit holder; and

viii, other relevant factors.

- e. The administrative authority may determine that remediation of a release of an LAC 33:VII.3005. Table 2 parameter or constituent from a facility is not necessary if the permit holder demonstrates to the satisfaction of the administrative authority that:
 - i. the groundwater is additionally contaminated by substances that have originated from a source other than a facility and those substances are present in such concentrations that cleanup of the release from the facility would provide no significant reduction in risk to actual or potential receptors; or
 - ii. parameter or constituent is present in groundwater that:
 - (a).is not currently or reasonably expected to be a source of drinking water; and
 - (b).is not hydraulically connected with waters to which the parameters or constituents are migrating or are likely to migrate in a concentration that would exceed the groundwater protection standards established under Subparagraph E.4.g of this Section; or
 - iii. remediation of the release(s) is technically impracticable; or
 - iv. remediation results in unacceptable cross-media impacts.
- f. A determination by the administrative authority pursuant to Subparagraph E.6.e of this Section shall not affect the authority of the administrative authority to require the permit holder to undertake source control measures or other measures that may be necessary to eliminate or minimize further releases to the groundwater, to prevent exposure to the groundwater, or to remediate the groundwater to concentrations that are technically practicable and that significantly reduce threats to human health or the environment.

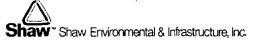
Not applicable. This application is for a Type I facility.

- 7. Implementation of the Corrective Action Programs at Type II Landfills and Associated Type II Surface Impoundments
 - a. After the corrective action plan has been approved by the administrative authority and, based on the corrective action plan schedule established under



Subparagraph E.6.d of this Section for initiation and completion of remedial activities, the permit holder must:

- i. implement a corrective-action groundwater monitoring program as described in the approved corrective-action plan that:
 - (a). at a minimum, meets the requirements of an assessment monitoring program under Paragraph E.4 of this Section;
 - (b).indicates the effectiveness of the corrective action remedy; and
 - (c). demonstrates compliance with the groundwater protection standard pursuant to
- ii. implement the corrective-action plan established under Paragraph E.6 of this Section.
- b. A permit holder may submit a report to the Office of Environmental Assessment, Environmental Technology Division demonstrating, based on information developed after implementation of the corrective action plan has begun or other information, that compliance with requirements of Subparagraph E.6.b of this Section are not being achieved through the remedy selected. A revised corrective-action plan providing other methods or techniques that could practically achieve compliance with the requirements of Subparagraph E.6.b of this Section must accompany the demonstration.
- c. If the administrative authority approves, in writing, the demonstration and revised corrective action plan submitted pursuant to Subparagraph E.7.b of this Section, the permit holder must implement the revised corrective-action plan.
- d. The permit holder may submit a report to the Office of Environmental Assessment, Environmental Technology Division demonstrating that compliance with the requirements under Subparagraph E.6.b of this Section cannot be achieved with any currently available methods.
- e. If the administrative authority approves, in writing, the demonstration submitted pursuant to Subparagraph E.7.d of this Section, the permit holder must, within 30 days of the approval, submit a plan to the Office of Environmental Assessment, Environmental Technology Division (which includes an implementation schedule) to implement alternate measures in accordance with LAC 33:I.Chapter 13:



- to control exposure of humans and the environment to residual contamination as necessary to protect human health and the environment; and
- ii. for the control of the sources of contamination, or for the removal or decontamination of equipment, devices, or structures, that are technically practicable and consistent with the overall objective of the remedy.
- f. If the administrative authority approves the plan for alternate measures submitted pursuant to Subparagraph E.7.e of this Section, the permit holder must implement the plan.
- g. All solid wastes that are managed pursuant to a remedy required under Paragraph E.6 of this Section, or an interim measure required under Clause E.4.f.iii of this Section, shall be managed in a manner:
 - i. that is protective of human health and the environment; and
 - ii. that complies with applicable RCRA requirements.
- h. Remedies selected pursuant to Paragraph E.6 of this Section shall be considered complete when:
 - i. the permit holder complies with the groundwater protection standards established under Subparagraph E.4.g of this Section at all points within the plume of contamination that lie beyond the groundwater monitoring well system established under Paragraph E.1 of this Section; and
 - ii. compliance with the groundwater protection standards established under Subparagraph E.4.g of this Section has been achieved by demonstrating that concentrations of LAC 33:VII.3005. Table 2 parameters or constituents have not exceeded the groundwater protection standard(s) for a period of three consecutive years using the statistical procedures and performance standards in Subparagraph E.2.e of this Section. The administrative authority may specify an alternative length of time during which the permit holder must demonstrate that concentrations of LAC 33:VII.3005. Table 2 parameters or constituents have not exceeded the groundwater protection standard(s) taking into consideration:
 - (a). extent and concentration of the release(s);
 - (b).behavior characteristics of the hazardous parameters or constituents in the groundwater;

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- (c). accuracy of monitoring or modeling techniques, including any seasonal, meteorological, or other environmental variabilities that may affect the accuracy; and
- (d).characteristics of the groundwater;
- iii. all actions required to complete the remedy have been satisfied.
 - (a). Upon completion of the remedy, the permit holder must submit to the administrative authority within 14 days a certification that the remedy has been completed in compliance with the requirements of Subparagraph E.7.h of this Section. The certification must be signed by the permit holder and approved by the administrative authority.
 - (b). When, upon completion of the certification, the administrative authority determines that the corrective action remedy has been completed in accordance with the requirements under Subparagraph E.7.h of this Section, the permit holder shall be released from the requirements for financial assurance for corrective action under LAC 33:VII.727.B.

Not applicable. This application is for a Type I facility.

- 8. Assessment Monitoring Program for Solid Waste Disposal Facilities Other than Type II Landfills and Associated Type II Surface Impoundments
 - a. An assessment monitoring program as described in Paragraph E.8 of this Section is required to be conducted at solid waste disposal facilities other than Type II landfills and associated Type II surface impoundments whenever a statistically significant increase over background concentrations is detected for one or more of the parameters or constituents sampled and analyzed during the detection monitoring program. The assessment monitoring parameters or constituents shall consist of the detection monitoring parameters or constituents, although the administrative authority may add additional parameters or constituents on a site-specific and waste-specific basis.
 - Cleco will implement an appropriate assessment monitoring program as required when a statistically significant increase over background concentrations is detected for one or more of the parameters or constituents.
 - b. Within 90 days after triggering an assessment monitoring program, the permit holder must sample and analyze the groundwater at all wells for all the assessment monitoring parameters or constituents.



Cleco will sample and analyze all of the groundwater wells necessary for all of the assessment monitoring parameters or constituents within 90 days.

- c. If assessment monitoring parameters or constituents are detected at concentrations significantly different from background in the resampling event in Subparagraph E.4.b of this Section, the permit holder must, within 14 days of the determination, submit a report to the Office of Environmental Assessment, Environmental Technology Division identifying the assessment monitoring parameters or constituents which are statistically different from background concentrations. The permit holder must also:
 - i. within 90 days after the determination is made, submit four bound copies (8 1/2 by 11 inches) of an assessment plan to the Office of Environmental Assessment, Environmental Technology Division, as well as any necessary permit modification, to the Office of Environmental Services, Permits Division that provides for:
 - (a). characterization of the nature and extent of the release by installing and sampling additional monitoring wells as necessary;
 - (b).installation of at least one additional monitoring well in the direction of the contaminant migration and sampling of this well in accordance with Subclause E.8.c.i.(c) of this Section;
 - (c) sampling, analysis, and reporting of results of all wells for all assessment monitoring parameters or constituents at least once every 90 days; and
 - (d).a schedule for implementing the plan.

Cleco will submit the necessary documentation to the LDEQ as required in this citation.

ii. notify all persons who own the land or reside on the land that directly overlies any part of the plume of contamination if contaminants have migrated off site as indicated by the sampling of the wells in accordance with Clause E.8.c.i of this Section;

Cleco will notify all appropriate persons in the event that any contamination has migrated off site.

iii. upon consultation with and approval of the administrative authority, must implement any interim measures necessary to ensure the protection of human health and the environment. Interim measures should be in accordance with LAC 33:I.Chapter 13 and, to the greatest extent



practicable, be consistent with the objectives of and contribute to the performance of any remedy that may be required pursuant to Paragraph E.6 of this Section. The following factors must be considered by a permit holder in determining whether interim measures are necessary:

- (a).time required to develop and implement a final remedy;
- (b).actual or potential exposure of nearby populations or environmental receptors to hazardous parameters or constituents;
- (c). actual or potential contamination of drinking water supplies or sensitive ecosystems;
- (d).further degradation of the groundwater that may occur if remedial action is not initiated expeditiously;
- (e). weather conditions that may cause hazardous parameters or constituents to migrate or be released;
- (f). risk of fire or explosion, or potential for exposure to hazardous parameters or constituents as a result of an accident or failure of a container or handling system; and
- (g).other situations that may pose threats to human health and the environment.

Cleco will consider the above factors if it is necessary to implement any interim measures.

- 9. Corrective Action for Solid Waste Disposal Facilities Other than Type II Landfills and Associated Type II Surface Impoundments
 - a. Corrective action at solid waste disposal facilities other than Type II landfills and associated Type II surface impoundments must be performed in accordance with Paragraph E.9 of this Section and LAC 33:I.Chapter

Cleco will perform any corrective action in accordance with Paragraph E.9 and LAC 33:I.Chapter

b. Within 270 days after the submission of the assessment plan, the permit holder must submit four bound copies (8 1/2 by 11 inches) of a corrective-action plan to remediate the groundwater to the Office of Environmental Assessment, Environmental Technology Division, describing the selected remedy, which shall also include:

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i. a corrective-action groundwater monitoring program which, at a minimum, meets the requirements of an assessment monitoring program under Paragraph E.8 of this Section, and which indicates the effectiveness of the corrective action remedy;

Cleco will submit a corrective-action plan with in the 270 day timeframe if it becomes necessary to implement corrective action measures.

ii. a schedule for initiating and completing remedial activities.

Cleco will submit a schedule for implementation along with the corrective action plan.

c. After the corrective-action plan has been approved by the administrative authority and based on the schedule established in Clause E.9.b.ii of this Section, the permit holder must implement a corrective-action program to remediate the groundwater.

Cleco implement a corrective-action plan as needed to remediate groundwater contamination.

d. Upon completion of the remedy, the permit holder must submit to the administrative authority within 14 days a certification that the remedy has been completed in compliance with the requirements of Subparagraph E.7.h of this Section. The certification must be signed by the permit holder and approved by the administrative authority.

Cleco will submit certification that the remediation has been completed according to the requirements of Subparagraph E.7 within 14 days of the date completed.

10. Applicability to Type II Landfills and Associated Surface Impoundments which are also Type I Landfills and Surface Impoundments. Assessment monitoring, assessment of corrective measures, selection of remedies and corrective action plans, and implementation of corrective action plans at landfills and their associated surface impoundments which are both Type I and Type II (i.e., receive both nonindustrial and industrial solid wastes) are governed by Paragraphs E.4-7 of this Section. These facilities are not governed by Paragraphs E.8 and 9 of this Section, which govern all other solid waste disposal facilities. All solid waste disposal facilities are governed by Paragraphs E.1-3 of this Section.

Not applicable. This application is for a Type I facility, not a Type II facility.

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6.0 LAC 33:VII.711. Standards Governing Landfills (Type I and II)

Cleco is proposing the construction and operation of a Type I facility to handle non-hazardous solid waste generated on-site from the operation of the proposed Unit 3 solid fuel electric utility boilers. The solid waste facility will consist of a landfill and associated leachate\contact storm water pond. The design and operation of the landfill is addressed within the responses to the standards of LAC 33:VII.711. The design and operation of the leachate pond are addressed in the responses to the standards of LAC 33:VII.713 (Section 7.0 of this application).

Schematics of the levee system, base liner system, leachate collection system, and other details of the landfill design are provided in this application as Figures 24 through 33.

A. Facility Surface Hydrology

1. Facilities located in the 100-year flood plain must be filled to bring site elevation above flood levels or perimeter levees or other measures must be provided to maintain adequate protection against the 100-year flood elevation.

The proposed facility will be constructed within an area previously permitted through the Army Corps of Engineers (COE) under permit number LMNOD-SP dated March 29, 1977. The permit authorizes the installation and maintenance of a fill and levee ash containment system. This information was taken from a letter written to Shaw Environmental from the COE and is located in Appendix A. Cleco also previously received a solid waste permit for this area from the LDEQ for the construction of a surface impoundment to mange ash for future plant expansions.

As shown in Figure 3, a majority of the proposed ash management unit will be located within a 100-year flood plain, which is approximately 100 feet for the area; the perimeter levee system was constructed with appropriate materials to a minimum elevation of 105 feet. The system is also provided with a vegetative cover to ensure the integrity of the facility during a 100-year flood event. Drawings relating to the levee system are provided in Figures 24 and 32.

2. Facilities located in or within 1,000 feet of an aquifer recharge zone shall be designed to protect the areas from adverse impacts of operations at the facility.

The entire RPS facility overlies a portion of the aquifer recharge area for both the Pleistocene Terrace aquifer of the central and north Louisiana and the Alluvial aquifer, as shown on Figure 34. The majority of the RPS is located on the aquifer recharge area for the Terrace aquifer. The proposed ash management area will be situated on the aquifer recharge area for the Alluvial aquifer. The ash management area will be constructed adjacent to and within the existing levee system for a currently permitted solid waste facility (P-0005 Bottom Ash and Fly Ash Ponds) and will be designed to protect the aquifer recharge zone from any potential adverse impacts. The ash

management area will be constructed with a leachate collection system. The design also contains a composite liner system meeting the standards of this chapter. Diagrams of landfill construction are located in Figures 24-33. In addition to the engineering design, the in place ash material will have very low permeability and will serve as an additional liner, further reducing the potential for environmental impacts from the facility. Permeability data from similar material is included in Appendix J.

3. Surface-runoff-diversion levees, canals, or devices shall be installed to prevent drainage from the units of the facility which have not received final cover to adjoining areas during a 24-hour/25-year storm event. When maximum rainfall records are not available, the design standard shall be 12 inches of rainfall below 31 degrees north latitude and nine inches of rainfall above 31 degrees north latitude. If the 24-hour/25-year storm-event level is lower, the design standard shall be required.

The landfill will be provided with a perimeter ditch system and levee system to prevent surface run-off from the operational areas of the unit during a 24-hour/25-year storm event as listed within the response to LAC 33:VII.521.C.1.c and provided in Section 3.0 of this application.

4. Facilities located in the 100-year floodplain shall not restrict the flow of the 100-year flood or significantly reduce the temporary water-storage capacity of the floodplain, and the design shall ensure that the flooding does not affect the integrity of the facility or result in the washout of solid waste so as to pose a threat to human health and the environment.

Storm water run-on to the proposed facility is prevented by the perimeter levee system for the proposed facility. There has been no indication that this system has had a negative impact on the temporary watershed capacity. The minimum berm elevation will be maintained at 105 feet to protect against the 100-year flood event (100 feet for the area). All run-on will be diverted away from the facility to existing drainage channels that drain to the Red River, Bayou Jean de Jean, or Lake Rodemacher. As the northwest portion of the area is constructed into the hillside, a perimeter ditch will be cut to divert any run-on from occurring in this area. These ditches will be diverted to existing discharge points.

This area was previously permitted through the COE under permit number LMNOD-SP dated March 29, 1977. The permit authorizes the installation and maintenance of a fill and levee ash containment system. This information was taken from a letter written to Shaw Environmental from the Corps of Engineers and is provided in Appendix A. Although not constructed, the ash management area was also previously permitted by the LDEQ for the placement of a surface impoundment to manage ash resulting from future plant expansions.

5. Runoff from operating areas or areas which contain solid waste and have not yet received interim compacted cover or final cover shall be considered contaminated and shall not be allowed to mix with noncontaminated surface runoff.

During operation and post-closure, runoff from inside the perimeter levee will be controlled independently. Storm water coming in contact with ash will be pumped to the lined leachate collection pond and treated before release through the LPDES outfall. Cross section of the landfill is provided as Figure 31.

6. A run-on control system shall be installed to prevent run-on during the peak discharge from a 25-year storm event.

The levee system for the landfill will prevent surface water run-on during a 24-hr/25-year storm event.

7. Trenches or areas used for waste disposal shall be graded to facilitate drainage.

The landfill cells will be constructed as described in Figure 25. The associated leachate collection system is designed to remove water from within the landfill cells to minimize the potential for ponding of surface water within the working areas of the unit. Drawings of the leachate collection system are provided in Figure 26 and 28.

B. Facility Plans and Specifications

1. Plans, specifications, and operations represented and described in the permit application or permit modifications for all facilities must be prepared under the supervision of and certified by a registered engineer, licensed in the state of Louisiana.

The plans, specifications and operational procedures for the landfill have been prepared under the supervision and certified by a registered engineer, licensed in the state of Louisiana.

- 2. Daily and Interim Cover Requirements
 - a. Cover material must:
 - minimize vector-breeding areas and animal attraction by controlling:
 - (a). fly, mosquito, and other insect emergence and entrance;
 - (b).rodent burrowing for food and harborage; and
 - (c). bird and animal attraction;
 - ii. control leachate generation by:

- (a). minimizing external-moisture infiltration;
- (b).minimizing erosion; and
- (c). utilizing materials with minimum free-liquid content and minimum concentrations of constituents monitored in leachate;
- iii. reduce fire-hazard potential by minimizing inward movement of atmospheric oxygen;
- iv. minimize blowing paper and litter;
- v. reduce noxious odors by minimizing outward movement of methane and other gases;
- vi. provide an aesthetic appearance to the landfill operation; and
- vii. allow accessibility regardless of weather.
- b. Silty or sandy clays applied a minimum of six inches thick at the end of each operating day are satisfactory for daily cover, and silty clays applied a minimum of one foot thick are satisfactory for interim cover.
- c. Alternative daily cover materials may be approved by the administrative authority provided the standards of Subparagraph B.2.a of this Section are met. The administrative authority reserves the right to require testing to confirm acceptability. The administrative authority may waive the requirements for daily cover, for Type I landfills only, if the permit holder or applicant can demonstrate that the nature of the waste is such that daily cover is not necessary. Daily cover requirements may not be waived for Type II landfills.
- d. Alternative daily cover materials submitted for approval should be available on a regular basis and demonstrate reasonably consistent composition and performance characteristics.
- e. Interim cover or interim compacted cover shall be applied on all operating areas of a facility which will not receive solid waste for a period longer than 60 days. Interim cover or interim compacted cover must be applied within 48 hours of the last receipt of solid waste in the operating area. Facilities that provide interim cover or interim compacted cover shall also implement an erosion control plan.
- f. Daily and interim cover must be applied and maintained in a condition that will meet the purposes of Subparagraph B.2.a of this Section.

g. The source of daily and interim cover must be accessible regardless of weather.

Not Applicable. No daily cover is necessary as the material will be partially hydrated prior to transport to the Ash Management Area with an additional application of water after the ash is placed within the landfill. The characteristics of the ash will undergo a distinct change in chemical and physical characteristics when mixed with water. Fly ash is a pozzolanic material, that is, its silicon oxide and aluminum oxide components react with its calcium fraction in the presence of water to form slow hardening cement. The result of this reaction produces a hard, structurally stable compound with very low permeability.

In addition, the inert, solid waste ash to be stored within the landfill is a non-combustible, granular material that does not have the potential to generate litter or noxious odors. The design of the landfill allows for the safe operation and utilization by facility personnel and provides an effective method to handle the excess solid waste ash generated on-site in a unit conducive to an industrial setting.

3. Levee Construction

- a. Levees or other protective measures must be provided in order to protect the facility against the 100-year flood so as to prevent the washout of solid waste.
- b. If levees are required to protect the facility against the 100-year flood, such perimeter levees shall be engineered to minimize wind and water erosion and shall have a grass cover or other protective cover to preserve structural integrity and shall provide adequate freeboard above the 100-year flood elevation.

The proposed facility will be constructed within an area previously permitted through the Army Corps of Engineers (COE) under permit number LMNOD-SP dated March 29, 1977, and later approved by the LDEQ. The permit authorizes the installation and maintenance of a fill and levee ash containment system. This information was taken from a letter written to Shaw Environmental from the COE and is located in Appendix A. Cleco also previously received a solid waste permit for this area for the construction of a surface impoundment to mange ash for future plant expansions.

As shown in Figure 3, a majority of the proposed ash management unit will be located within a 100-year flood plain, which is approximately 100 feet for the area; the perimeter levee system was constructed with appropriate materials to a minimum elevation of 105 feet. The system is also provided with a vegetative cover to ensure the integrity of the facility during a 100-year flood event. Drawings relating to the levee system are provided in Figures 24 and 32.

4. Leachate Control, Collection, Treatment, and Removal Systems

The landfill will include a leachate collection and removal system that complies with the minimum applicable standards of LAC 33:VII.711.B.4.b. Details and sections depicting the system are provided within this application as Figures 26 and 28. The design studies and supporting calculations, including HELP model results, for the potential leachate to be generated by the landfill and the capacity of the system and associated pond are provided within Appendix J of this application. As discussed within the Facility Operational Plan (Appendix E), the leachate generated within the landfill will not produce greater than a 12-inch head above the liner system (the liner system is discussed below in the response to LAC 33.VII.711.B.5). Calculation demonstrating compliance with this standard is provided in the design calculations included in Appendix J of this application.

Some specifics on the system are listed below.

- The system within each cell will consist of a network of collection pipes that drains to a lift station.
- The lift station will route the leachate to the Leachate Collection/Runoff Pond prior to discharge through LPDES Permit R04.
- The collection lines will be a minimum 6-inch diameter HDPE pipe sloped a minimum 1% towards the lift station.
- Stone surrounding the leachate collection pipes will be either crushed stone over a geotextile or rounded stone. The specific type used is dependent on material prices at the time of construction. The contractor may use either alternative.
- A non-woven geotextile will be placed at the sand/pipe bedding interface to reduce fines from entering the leachate collection bedding and piping.
- Cleanouts will be provided for each leachate line.
- The maximum flow path for leachate will be 80 feet, which is less than the 100 feet maximum standard of the Solid Waste Regulations.
- a. The standards in Paragraph B.4 of this Section apply to leachate control, collection, treatment, and removal systems for proposed landfills and units of existing landfills which receive waste on or after the required upgrade date specified in LAC 33:VII.315.G. These standards also apply to units of Type II landfills which have not received waste prior to October 9, 1993.

The landfill design includes a leachate collection and removal system that complies with the minimum applicable standards of LAC 33:VII.711.B.4. Details and

sections depicting the system are provided within this application as Figures 26 and 28.

b. Leachate Control, Collection, Treatment and Removal Standards

The landfill will include a leachate collection and removal system that complies with the minimum applicable standards of LAC 33:VII.711.B.4.b. Details and sections depicting the system are provided within this application as Figures 26 and 28.

 Leachate shall not be managed by allowing the leachate to be absorbed in the waste.

The proposed landfill will be equipped with a leachate collection system.

ii. Infiltration of water into the waste shall be minimized by daily, interim, and final cover, as required by these regulations.

Daily and interim covers are not required because of the nature of the ash material being handled; an extended discussion of the characteristics of the ash material is provided within the Facility Operational Plan (Appendix E). The Closure/Post Closure Plan (Appendix I) provides for a final cover design.

iii. The impact of leachate on the environment shall be minimized by a leachate collection and removal system and a leachate treatment system designed to ensure positive removal and treatment of generated leachate.

The leachate collection system is designed to provide maximum protection to the environment. Leachate collection and removal will be accomplished through positive gravity and pumping to direct the leachate to the Leachate Collection/Runoff Pond and ultimately discharged in compliance with an existing LPDES permit.

iv. Leachate removed shall be handled in such a manner that it does not adversely affect the environment.

All leachate will be routed to the leachate collection pond and ultimately discharged in compliance with an existing LPDES permit.

v. Migration of leachate shall be prevented by liners or other barriers.

The proposed facility will be provided with a liner system that meets the standards of this chapter. See response to LAC 33:VII.711.B.5 below.

vi. Representative samples of raw leachate shall be collected and analyzed annually for the same parameters which are required for the facility groundwater monitoring wells in LAC 33:VII.709.E.4.

Cleco will analyze samples of the leachate annually for the same parameters identified in the facility groundwater monitoring plan.

- vii. The following minimum standards apply to leachate collection and removal systems.
 - (a). The leachate collection system shall be located above the primary liner.
 - (b). All leachate collection pipes shall be perforated, a minimum of six inches in diameter, and constructed of materials resistant to the leachate.
 - (c). Leachate cleanout risers or manholes must be provided for each leachate collection line. The maximum length of leachate collection lines shall not exceed the capabilities of the cleanout device.
 - (d). A granular leachate collection drainage blanket or a synthetic drainage blanket must be provided to trap fines and prevent waste from entering the drainage layer while allowing the passage of leachate.
 - (e). The flow path of leachate on the liner surface shall be no greater than 100 feet to the point of collection. (For the purpose of determining this distance, the permit holder or applicant may assume that the leachate flow path is perpendicular to the leachate collection pipe.)
 - (f). The slope on the surface of the liner toward the leachate collection lines shall be a minimum of 2 percent.
 - (g). The slope of all leachate collection pipes shall be a minimum of 1 percent.
 - (h). The leachate head shall be maintained in a pumped-down condition such that not more than 1 foot of head shall exist above the lowest bottom elevation of the leachate collection lines.
 - (i). The equipment used to remove leachate from the collection system shall be adequately sized to accommodate normal facility operations.

pipes.

(j). Trenches or swales shall be provided to protect the leachate collection

- (k). The leachate collection lines shall be sloped down toward the perimeter of the unit.
- (l). An adequate thickness of gravel shall be placed on all sides of the leachate pipes.
- (m). Gravel size shall be selected carefully to ensure that it is larger than the perforations in the collection pipe.
- (n). A geotextile shall be used to line the base and sidewalls of all leachate collection trenches or swales. The migration of fines into the tops of the trenches shall be minimized by a properly designed, graded soil filter or geotextile.
- (o). Materials such as limestone and dolomite shall not be used in the leachate collection system. However, the administrative authority may allow alternate materials to be used in construction of the leachate collection system if the permit holder or applicant can demonstrate that the materials can provide equivalent or superior performance.
- (p). Leachate lines (and other engineering structures) shall not penetrate the liner. The administrative authority may waive this requirement to allow horizontal penetration of the liner only if the permit holder or applicant can demonstrate that special or unusual circumstances warrant such a waiver and that liner integrity can be protected.
- (q). An antiseep collar should be placed around the leachate line that penetrates the liner. A minimum of three feet of recompacted clay or equivalent material shall be placed around the collar.
- (r). All leachate transfer (force-main) lines shall be pressure tested prior to their use.
- (s). All control systems for pumps, valves, and meters shall be designed to be operated from the ground level.

As stated previously, the landfill will include a leachate collection and removal system that complies with the minimum applicable standards of LAC 33:VII.711.B.4.b. Details and sections depicting the system are provided within this application as Figures 26 - 29.

5. Liners

The leachate generated from the landfill will be contained by a liner system, as shown in Figures 27 – 29, designed in accordance with the requirements of LAC 33.VII.521.F.4. The liner system will consist of 36-inch compacted clay layer overlain by a 60-mil HDPE geomembrane liner. The clay will have a maximum hydraulic conductivity of 1.0 x 10⁻⁷ cm/sec. The geomembrane liner will be overlain with a top layer composed of 12-inches of sand. The slope of the liner will be a minimum 2% toward the leachate collection pipes – details of the leachate collection and removal system to be installed over the liner system are provided in the response above to LAC 33:VII.711.B.4.

The area for the proposed landfill has material suitable for the clay layer of the liner system. The material in the borrow area consists of sandy clay (CL-SC), clayey sand (SC), silty fine sand (SM), and clay (CH). Construction of the 3-foot clay layer will be performed in accordance with the Liner Quality Assurance/Quality Control Plan. Prior to construction, clay samples will be taken by Shelby tube sampling for each of the soil units, then recompacted to develop optimum moisture curves for compacted and recompacted permeabilities. Specifics of the construction process include the following:

- Excavation of the on-site clay;
- Grading the subsurface to the slopes/elevations indicated on the construction drawings, and then recompacted in place in 6-inch to 8-inch lifts; and
- Density testing will be performed on each lift.
- a. The standards in Paragraph B.5 of this Section apply to liners for proposed landfills and units of existing landfills which receive waste on or after the required upgrade date in LAC 33:VII.315.G. These standards also apply to units of Type II landfills which did not receive waste before October 9, 1993, as provided in LAC 33:VII.315.G.

The landfill design includes a liner system that complies with the standards of LAC 33:VII.711.B.5. Details and sections of the system are provided within this application in Figures 27 - 29.

b. The permit holder or applicant must provide and implement a quality-control and quality-assurance plan for liner construction and maintenance that will ensure that liners are designed, constructed, installed, and maintained properly. All facilities must have quality-control plans for the excavations. All excavations and liners shall be inspected and certified by a registered engineer, licensed in the state of Louisiana, with the appropriate expertise.

As stated within the Facility Operational Plan (Appendix E), Cleco will develop and implement a Quality Control and Assurance Plan for the construction and maintenance of the liner system prior to installation. The Plan will ensure that permitted design of the liner is properly constructed, installed and maintained. As necessary, Cleco will develop and implement an Excavation Plan prior to any excavation work.

The liner system and any excavations will be inspected and certified by an experienced Professional Engineer who is registered in the state of Louisiana.

- c. The permit holder or applicant must demonstrate that the liner is placed upon a base that provides the following:
 - adequate support for the contents;
 - ii. maximum resistance to settlement of a magnitude sufficient to affect the integrity of the liner or the proper positioning of the leachate collection or leak-detection system;
 - iii. maximum resistance to hydrostatic heave on the sides or bottom of the excavation: and
 - iv. maximum resistance to desiccation.

Cleco performed an extensive geotechnical investigation of the proposal landfill The results of this investigation are presented in Appendix B of this In addition, settlement calculations for the proposed facility are included in this application in Appendix J.

Results of the settlement calculations indicate that under the plateau area of the proposed facility there may be a maximum settlement of 50 inches. However, recent geotechnical borings did not identify any extensive areas of unsatisfactory subsurface conditions where differential settlement will occur. between the exterior perimeter of the landfill area of the proposed facility and the plateau increases the depth of ash loading at a uniform rate to the toe of the liner and then from the liner toe to the plateau. The horizontal difference in this transition area is typically 400 feet. The side settlement slope is therefore estimated to change 0.6 degrees, or an increased length of less than 0.3 inches. Given the industry provided estimate of 20% elongation at yield and >500% at failure, the estimated elongation of the liner in this area is 6-thousands of 1%, which is well within the industry standard yield (or failure) in tensile testing. In addition, the clay liner will contort similarly with a cross sectional area reduction of two thousands of a percent, providing an immeasurable difference.

The upper 20' to 30' of soil in the proposed landfill area consists primarily of cohesive soils comprised of low (CL) to high (CH) plasticity clays and sandy silts (ML). The results of this evaluation indicate that a total settlement of approximately 52" will occur beneath the center of the landfill and reducing to a few inches at the toe of the fill. This value includes both the elastic (immediate) settlement and the long term settlement that will occur as the underlying soils consolidate due to the load of the ash fill. The immediate settlement was determined using the Stress-strain Modulus approach and the long-term settlement was determined using the conventional consolidation theory approach. Soil descriptions and properties were obtained from the Aquaterra Engineering report "Geotechnical Investigation to Support Solid Waste Permitting, Rodemacher Power Station" dated December 31, 2004, (Appendix B).

- d. Units of landfills shall be lined along the sides and bottom with a liner system installed under the supervision of a registered engineer, licensed in the state of Louisiana and with the appropriate expertise, which consists of the following, in descending order:
 - i. a leachate collection system designed and constructed in accordance with Paragraph B.4 of this Section; and
 - ii. a composite liner which consists of a geomembrane liner at least 30-mil thick installed directly above and in uniform contact with a three-foot recompacted clay liner having a hydraulic conductivity no greater than 1 x 10⁻⁷ cm/sec (If the geomembrane component is high-density polyethylene, then the geomembrane component must be at least 60-mil thick. Any geomembrane liner used must be compatible with the solid waste and leachate in the unit); or
 - iii. subject to the approval of the administrative authority, an alternative liner. Permit holders or applicants seeking to use an alternative liner must successfully make the following demonstration to the administrative authority:
 - (a). the unit receives and will receive only industrial solid waste generated on site; and
 - (b).the alternative liner system will provide equivalent or greater groundwater protection at the site as compared to the composite liner design in Clause B.5.d.ii of this Section, as demonstrated by generally accepted modeling techniques and based on factors specific to the site and to the solid wastes received. The burden of proof of adequacy of the alternate liner design shall be on the permit holder or applicant.

The landfill will be lined along the bottom and sides with a liner system consisting of the following:

- Leachate Collection System designed and constructed in accordance with LAC 33:VII.711.B.4; and a
- Composite Liner compatible with the solid waste and associated leachate within the unit that consists of a high-density polyethylene geomembrane liner at least 60-mil thick installed directly above and in uniform contact with a three-foot recompacted clay liner having a hydraulic conductivity of no greater than 1 x 10⁻⁷ cm/sec.

The liner system will be installed under the supervision of a registered engineer, licensed in the state of Louisiana and with the appropriate expertise. Details and cross-sections of the proposed liner system are provided in Figures 27 - 29.

Cleco is not requesting an alternative liner system under LAC 33:VII.711.B.5.d.iii.

e. Secondary liners may be constructed below and in addition to the required composite liner. The specifications of secondary liners must be approved by the administrative authority on an individual basis.

Not Applicable. Cleco will not utilize a secondary liner for the proposed landfill.

f. A leak-detection system may be constructed between the required composite liner and any secondary liner.

Not Applicable. Cleco will not utilize a secondary liner for the proposed landfill; therefore, a leak-detection system is not necessary.

g. Special design conditions may be required in areas where the groundwater table is high or where other circumstances warrant such conditions as determined by the administrative authority. These special design standards may include more protective or stringent standards, such as secondary liners (described in Subparagraph B.5.e of this Section) or leak-detection systems, or other conditions.

Not applicable. The groundwater table is not high enough to warrant any special designs.

6. Gas Collection and Treatment or Removal System

a. Each unit of the facility with a potential for methane gas production and migration shall be provided with a methane gas collection and treatment or removal system.



- b. The collection system shall be vented to the atmosphere or connected to a dispersal system or resource recovery system in accordance with accepted practices.
- c. The gas collection and treatment or removal system shall be such that it limits methane gas to lower-explosive limits at the facility boundary and to 25 percent of the lower explosive limits in facility buildings.

d. Sampling protocol, chain of custody, and test methods shall be established for all gas collection and treatment or removal systems.

Not Applicable. Methane or other gases will not be generated by the fly ash deposited within the landfill; therefore, a gas collection and treatment or removal system is not required.

C. Facility Administrative Procedures

1. Recordkeeping and Reports

a. Reports

- i. The permit holder shall submit annual reports to the Office of Management and Finance, Financial Services Division indicating quantities and types of solid waste (expressed in wet-weight tons per year), received from in-state generators and from out-of-state generators, during the reporting period. The annual report shall also indicate the estimated remaining permitted capacity at the facility as of the end of the reporting period (expressed in wet-weight tons). All calculations used to determine the amounts of solid waste received for disposal during the annual-reporting period and to determine remaining capacity shall be submitted to the administrative authority. A form to be used for this purpose must be obtained from the Office of Management and Finance, Financial Services Division or through the department's website.
- ii. The reporting period for the disposer annual report shall be from July 1 through June 30, commencing July 1, 1992, and terminating upon closure of the facility in accordance with the permit.
- iii. Annual reports shall be submitted to the administrative authority by August l of each reporting year.
- iv. The annual report is to be provided for each individual permitted facility on a separate annual reporting form.
- v. A facility which receives industrial solid waste shall utilize, in its annual report, the seven-digit industrial waste number that has been assigned by the administrative authority to the industrial solid waste generator.

Cleco does not propose to receive any waste from offsite. Cleco will submit to the Office of Management and Finance, Financial Services Division annual reports of the quantities and types of solid waste received from the on-site utility boilers for each reporting period (July 1st through June 30th). Each report will be submitted on the forms obtained from the Division by August 1st following the reporting year.

The annual report will also include an estimate of the remaining capacity of the landfill for the end of the reporting period and the seven-digit industrial waste number for the RPS. Supporting calculations for all required quantities will be provided with each annual report.

b. Recordkeeping

i. The permit holder shall maintain at the facility all records specified in the application as necessary for the effective management of the facility and for preparing the required reports. These records shall be maintained for the life of the facility and shall be kept on file for at least three years after closure.

Cleco will maintain at RPS all records specified in the application as necessary for the effective management of the facility and for preparing the required reports. These records will be maintained for the life of the facility and will be kept on file for at least three years after closure.

ii. The permit holder shall maintain records of transporters transporting waste for processing or disposal at the facility. The records shall include the date of receipt of shipments of waste and the transporter's solid waste identification number issued by the administrative authority.

Not Applicable. The landfill will not receive waste generated off-site.

- iii. Records kept on site for all facilities shall include but not be limited to:
 - (a). copies of the current Louisiana solid waste rules and regulations;
 - (b).the permit;
 - (c). the permit application;
 - (d).permit modifications;
 - (e). certified field notes for construction;
 - (f). operator training programs;
 - (g).daily log;
 - (h).quality-assurance/quality-control records;
 - (i). inspections by the permit holder or operator including but not limited to inspections to detect incoming hazardous waste loads;

- (j). Board of Certification and Training for Solid Waste Disposal System Operator Certificates (if applicable);
- (k).records demonstrating that liners, leachate-control systems, and leakdetection and cover systems are constructed or installed in accordance with appropriate quality assurance procedures;
- (l). records on the leachate volume and results of the leachate sampling;
- (m).monitoring, testing, or analytical data;
- (n).any other applicable or required data deemed necessary by the administrative authority;
- (o). records on groundwater sampling results;
- (p).post-closure monitoring reports; and
- (q).copies of all documents received from and submitted to the department.

Cleco will maintain at RPS all records specified in the application as necessary for the effective management of the facility and for preparing the required reports including, but not limited to, those listed in LAC 33:VII.711.C.1.b.iii. These records will be maintained for the life of the facility and will be kept on file for at least three years after closure. Records of transporters transporting waste for processing or disposal at the facility under LAC 33:VII.711.C.1.b.ii will not be required as the landfill will not accept waste generated off-site.

See the recordkeeping procedures are identified within the Facility Operational Plan (Appendix E).

2. Personnel

a. Facilities shall have the personnel necessary to achieve the operational requirements of the facility. All personnel involved in waste handling at the facility must be trained adequately in procedures to recognize and exclude receipt or disposal of hazardous wastes and PCB wastes.

Key personnel necessary to achieve the operational requirements of the facility are provided within the Facility Operational Plan (Appendix E)

b. Facilities receiving residential and commercial solid waste shall have the numbers and levels of certified operators employed at the facility, as required by the *Louisiana Administrative Code*, Title 46, Part XXIII. Operator certificates shall be prominently displayed at the facility. The Board of Certification and Training for Solid Waste Disposal System Operators and the

Office of Environmental Services, Permits Division shall be notified within 30 days of any changes in the employment status of certified operators.

Not Applicable. The landfill will not receive residential or commercial solid waste.

D. Facility Operations

1. Facility Limitations

a. The receipt of hazardous waste and PCB waste shall be strictly prohibited and prevented. Permit holders of Type II landfills must implement a program of random inspections of incoming loads to detect and prevent the disposal of hazardous waste or PCB waste and must keep records of these inspections. Any other wastes that present special handling or disposal problems may be excluded by the administrative authority.

The landfill will only receive solid waste generated from the operation and maintenance of on-site electric utility boilers and will not receive hazardous waste or PCB waste.

b. Open burning of solid waste shall not be practiced at Type I or II landfills.

Cleco will not conduct open burning of solid waste at the landfill.

c. Salvaging shall be prevented unless approved by the administrative authority.

The type of materials managed at the facility are not of a nature that salvaging would be an issue. Ash marketing from the facility will however be encouraged.

d. Scavenging shall be prevented.

Access to the Cleco site is restricted and as noted above in the response to LAC 33:VII.711.D.1.C., the nature of the material does not promote scavenging.

e. Only infectious waste from hospitals or clinics which has been properly packaged and identified and is certified noninfectious by the Department of Health and Hospitals may be deposited in Type I or II landfills.

Not Applicable. The landfill will not handle infectious waste.

f. Grazing of domestic livestock shall not be allowed on operating areas.

The landfill is located within a fully secured industrial site. No domestic livestock is permitted within the Rodemacher Power Station.

- g. Except as provided in Clauses D.1.g.i and ii of this Section, liquid wastes shall not be disposed of in a landfill and facilities that plan to accept liquid wastes shall provide a means for solidifying and an appropriate quality assurance/quality-control program.
 - i. Bulk or noncontainerized liquid may not be placed in a landfill unless the waste is household waste, other than septic waste.
 - ii. Containers holding liquid waste may not be placed in a landfill unless:
 - (a). the container is a small container similar to that normally found in household waste;
 - (b).the container is designed to hold liquids for use other than storage; or
 - (c). the waste is household waste.

Cleco will not dispose liquid waste within the landfill, however, some water may be added to the material to assist in hydration.

h. Residential, commercial, and other wastes deemed acceptable by the administrative authority on a site-specific basis may be disposed of in Type I and II landfills. A comprehensive quality-assurance/quality-control plan shall be provided for facilities receiving friable asbestos and dewatered domestic wastewater treatment plant sludge.

Cleco will only dispose of ash resulting from the operation and maintenance of the on-site utility boilers; no outside waste will be accepted at the landfill. Therefore, a comprehensive quality-assurance/quality-control plan relating to the receipt of friable asbestos and dewatered domestic wastewater treatment plant sludge is not necessary.

i. No solid waste shall be deposited in standing water.

In accordance with the Operational Plan for the proposed facility, no solid waste will be deposited within the landfill in standing water. However, water will be utilized to solidify the ash material.

- j. The following limitations apply to Type I landfills:
 - i. Industrial solid waste and nonhazardous petroleum-contaminated media and debris generated by underground storage tanks (UST) corrective action may be disposed of only in Type I facilities. A comprehensive qualityassurance/quality-control plan shall be in place before the receipt of these wastes.

ii. Incinerator ash may be disposed of only in a Type I facility. A comprehensive quality-assurance/quality-control program shall be in place before the receipt of this waste.

Cleco will only dispose ash resulting from the operation and maintenance of the onsite utility boilers. Neither waste generated by underground storage tank corrective action nor incinerator ash will be disposed in the landfill. Therefore, a comprehensive quality-assurance/quality-control plan and associated program addressing these items is not necessary.

- 2. Facility Operational Plans. Operational plans shall be provided which describe in specific detail how the waste will be managed during all phases of disposal operations. At a minimum, the plan shall address:
 - a. the route the waste will follow after receipt;
 - b. the sequence in which the waste will be processed or disposed of within a unit;
 - the method and operational changes that will be used during wet weather (particular attention should be given to maintenance of access roads and to water management);
 - d. the recordkeeping procedures to be employed to ensure that all pertinent activities are properly documented;
 - e. the sampling protocol, chain of custody, and test methods that will be used in the gas-monitoring systems;
 - f. the engineering protocols and testing frequencies that will be used to ensure that the grade and slope of both the on-site drainage system and the run-on diversion system are maintained and serve their intended functions;
 - g. the engineering protocols and testing frequencies that will be used to ensure that the leachate collection and treatment system is functioning as designed; and
 - h. the measuring protocol to be used and the frequency with which the depth of leachate within the collection system will be checked, as well as how the leachate will be removed and transported to the treatment facility.

A complete Facility Operational Plan for the proposed facility that includes a discussion of the landfill is provided in Appendix E of this application. The Facility Operational Plan provides a description of how the solid waste will be managed during all phases of disposal operations and addresses, at a minimum, all applicable standards under LAC 33:VII.711.D.2.a through h.

3. Facility Operational Standards

a. Air-Monitoring Standards

Not Applicable. Cleco will dispose of only ash generated from the operation and maintenance of the on-site electric utility boilers, which does not have the potential to produce methane gas or other odors. Therefore, the requirements for air monitoring or associated activities under LAC 33:VII.711.D.3.a are not required for the proposed landfill.

- i. Facilities receiving waste with a potential to produce methane gas shall be subject to the air-monitoring requirements.
- ii. The permit holder or applicant subject to air-monitoring requirements shall submit to the Office of Environmental Services, Permits Division a comprehensive air-monitoring plan that will limit methane gas to less than the lower-explosive limits at the facility boundary and to 25 percent of the lower-explosive limits in facility buildings.
 - (a). The type and frequency of monitoring must be determined based on the following factors:
 - (i). soil conditions;
 - (ii). hydrogeologic conditions surrounding the facility;
 - (iii). hydraulic conditions surrounding the facility; and
 - (iv). the location of facility structures and property boundaries.
 - (b). The minimum frequency of monitoring shall be quarterly.
- iii. If methane gas levels exceeding the limits specified in Clause D.3.a.ii of this Section are detected, the permit holder must:
 - (a).immediately take all necessary steps to ensure protection of human health and notify the Office of Environmental Compliance in the manner provided in LAC 33:1.3923;
 - (b).within 30 days of detection, submit a remediation plan to the Office of Environmental Assessment, Environmental Technology Division for the methane gas releases. The plan shall describe the nature and extent of the problems and the proposed remedy and shall include an implementation schedule. The plan must be implemented within 60 days of detection.

- iv. The permit holder shall make prompt notification to the Office of Environmental Compliance in accordance with LAC 33:I.3923 when strong odors occur at facility boundaries.
- v. Records of inspections, surveys, and all gas monitoring results shall be maintained at the facility.
- vi. Odors shall be controlled by the best means practicable.
- vii. Facilities must ensure that the units do not violate any applicable requirements developed under a state implementation plan (SIP) approved or promulgated pursuant to Section 110 of the Clean Air Act, as amended.
- b. Waste shall be deposited under facility supervision in the smallest practicable area, spread in layers, and compacted to approximately two feet thick or, if baled, stacked and daily cover applied.

The Facility Operational Plan for the proposed solid waste facility, included as Appendix E, to this application addresses the procedure for depositing the solid waste within the landfill.

c. Vector Control

- i. Food or harborage shall be denied to rats, insects, and birds to the extent possible by using proper cover or other means acceptable on a site-specific basis. Where necessary, an approved pesticide shall be applied in accordance with applicable state and federal laws.
- ii. A schedule of the type and frequency of vector control measures to be used shall be submitted to the Office of Environmental Services, Permits Division for approval in the operational plan.

The characteristic of the solid waste ash to be deposited in the landfill will not attract vectors in search of food.

d. Waste Testing. The following operational standards apply to waste testing for facilities receiving domestic sewage sludge, industrial solid waste, incinerator ash, or nonhazardous petroleum contaminated media and debris generated by underground storage tanks (UST) corrective action:

Cleco will dispose within the facility only ash generated from the operation and maintenance of the on-site electric utility boilers. Therefore, Cleco will address the requirements of LAC 33:VII.711.D.3.d that apply to a solid waste facility that receives industrial solid waste.

i. Facilities which receive domestic septage or sewage sludge from publicly owned treatment works shall require the waste be tested for toxicity characteristics leachate procedure (TCLP) analysis and priority pollutants prior to acceptance of the waste and annually for two years following acceptance. Every year thereafter, the generator must certify that the waste remains unchanged.

Not Applicable. The landfill will not receive domestic septage or sewage sludge.

ii. Facilities which receive industrial waste (Type I) shall require testing for TCLP constituents prior to acceptance of the waste and annually thereafter, or documented process knowledge which confirms that the waste is not a characteristic or listed hazardous waste as defined in LAC 33:V.Subpart 1, or by federal regulations. Nonhazardous petroleumcontaminated media and debris generated from underground storage tanks (UST) corrective action will require testing for the appropriate constituents of TCLP prior to acceptance of the waste.

As the characteristic of the ash material to be disposed within the facility will not vary greatly over time, Cleco intends to utilize documented process knowledge to confirm that the material is not a hazardous waste.

iii. Type I facilities which receive incinerator ash shall require testing of the ash for TCLP metals and dioxins prior to acceptance and thereafter quarterly for TCLP metals and annually for dioxins.

Not Applicable. The landfill will not receive incinerator ash.

4. Sufficient equipment shall be provided and maintained at all facilities to meet the facilities' operational needs.

All equipment will be maintained and kept in good operational condition. A list of all needed equipment is provided in the Facility Operational Plan (Appendix E).

5. Segregation of Wastes

- a. White goods may be stored in a unit separate from other solid wastes and shall be removed every 30 days. The facility shall maintain a log of dates and volumes of white goods removed from the facility.
- b. Tree limbs, leaves, clippings, and similar residues may be segregated and deposited in a permitted unit separate from other solid waste and shall be covered every 30 days, or more often if necessary to control blowing and prevent rodent harborage.

c. Construction material and woodwastes may be deposited in a permitted unit separate from other solid wastes and covered every 30 days. This unit must meet the standards provided in LAC 33:VII.719 and 721.

Not Applicable. The landfill will not be utilized for disposal of white goods; tree limbs, leaves, clippings, or similar residues; construction material or wood waste. Therefore, a procedure for segregation of these wastes is not required.

6. Facility Operations, Emergency Procedures, and Contingency Plans

A copy of the Facility Operational Plan, which addresses the operational procedures for the proposed facility, is provided in Appendix E of this application. Emergency procedures and contingency plans for the plant are addressed within the Emergency Response Action Plan (Appendix G) as noted within the Facility Operational Plan.

a. A plan outlining facility operations and emergency procedures to be followed in case of accident, fire, explosion, or other emergencies shall be developed and filed with the Office of Environmental Services, Permits Division and with the local fire department and the closest hospital or clinic. The plans shall be updated annually or when implementation demonstrates that a revision is needed.

The Emergency Response Action Plan, which address the procedures for the plant including the proposed facility, has been filed with the Office of Environmental Services, Permits Division and with the local fire department and the closest hospital or clinic prior to the initial operation of the landfill. A copy of Cleco's Emergency Action Procedures is provided as Appendix G.

b. Training sessions concerning the procedures outlined in Subparagraph D.6.a of this Section shall be conducted annually for all employees working at the facility. A copy of the training program shall be filed with the Office of Environmental Services, Permits Division.

Training sessions concerning the procedures of the Emergency Response Action Plan and the Facility Operational Plan, as required in LAC 33:VII.711.D.6.a, will be conducted annually for all employees working at the facility. A copy of the training program will be filed with the Office of Environmental Services, Permits Division prior to the initial operation of the landfill.

E. Facility Closure Requirements

The Facility Closure/Post Closure Plan, which addresses the requirements for landfill closure under LAC 33:VII.711.E is provided in Appendix I of this application. The anticipated closure date for the landfill is 2040.

- 1. Notification of Intent to Close a Facility. All permit holders shall notify the Office of Environmental Services, Permits Division in writing at least 90 days before closure or intent to close, seal, or abandon any individual units within a facility and shall provide the following information:
 - a. date of planned closure;
 - b. changes, if any, requested in the approved closure plan; and
 - c. closure schedule and estimated cost.

Cleco will notify the Office of Environmental Services, Permits Division in writing at least 90 days before closure or intent to close any individual units within the landfill and will include the information required under LAC 33:VII.711.E.3.1.

2. Preclosure Requirements

- a. Final cover installation shall be initiated no later than 30 days after and shall be completed no later than 90 days after final grades are reached in each unit of a facility or the date of known final receipt of solid waste in the unit, whichever comes first. These deadlines may be extended by the administrative authority if necessary due to inclement weather or other circumstances to a maximum of 60 days for initiation and a maximum of 180 days for completion.
- b. Standing water shall be solidified or removed.
- c. The runoff-diversion system shall be maintained until the final cover is installed.
- d. The runoff-diversion system shall be maintained and modified to prevent overflow of the landfill to adjoining areas.
- e. Insect and rodent inspection is required to be documented before installation of final cover, and extermination measures must be provided if required as a result of the facility inspection.
- f. Final machine compacting and grading shall be completed before capping.

g. All facilities with a potential for gas production or migration shall provide a gas collection and treatment or removal system.

As previously discussed, the Ash Management Area is primarily intended to temporarily store by-product materials until they can be marketed for other uses. If sufficient materials can be sold of site for other beneficial uses, the site will be used for at least the life of the generating station. However, if ash accumulates to the point of reaching final grades, the cover system will be installed as grades are reached. For the purposes of this permit, the assumed closure date of the landfill is estimated to be 30 years after initial filling, concurrent with the projected life of the generating station.

The Administrative Authority will be notified in writing at least 90 days before closure or intent to close the Landfill. The written notification will include the date of the planned closure, any proposed changes to this closure plan, the closure schedule and the estimated cost.

After final grades are reached for the ash pond, the installation of the final cover will be initiated within 30 days and completed within 90 days from the date the final grade was reached. In the event of inclement weather or other circumstances beyond control of Cleco, these deadlines may be extended upon by the Administrative Authority to 60 days for initiation and 180 days for completion.

During the closure phase, the existing runoff diversion system will be maintained to prevent runoff to the pond from adjacent areas.

Once final ash filling grades are reached, at the specified slopes and the final surface features shaped (drainage terracing) the ash surface will be recompacted, scarified to a maximum depth of 3 to 6 inches to provide a bonding surface, and the 2-foot clay cover will be placed. Clay cover placement will be in accordance with the lift thicknesses, compactive effort, and testing as will be prescribed in the construction/closure detailed specifications. Samples of the clay will be collected and analyzed at an offsite laboratory to ensure the clay content is sufficient to meet the required permeability level, as well as to determine and verify the optimum moisture content for achieving the required compacted, in-place densities. In-situ field density testing and field permeability testing will also be performed to provide an actual measurement of what conditions are achieved from the compactive effort. Following satisfactory clay cover placement, the surface will receive a minimum of 6 inches of topsoil and will be seeded, fertilized and mulched to establish erosion control vegetation.

The source of the clay cover and the topsoil is from on site. Initial soil borings within the landfill footprint indicates there is a sufficient quantity of clay available for both the liner and cover materials.

The drainage terraces, sloped at 1%, will receive a geogrid erosion control material to help controls concentrated runoff until vegetation is established. At the point of terrace

convergence, "down comers" or "down slope flumes" will be installed to convey the water from the terraces to the perimeter storm water ditch. This ditch will direct the surface water runoff to the same discharge point as the leachate ponds.

Information regarding soil conditions in the area of the proposed landfill is included in Attachment 1 of the Facility Closure/Post Closure Plan. A landfill stability analysis was performed and is included as Attachment 4 of the plan. The CQA for the cover installation, as well specifications for the clay cover and high density polyethylene geomembrane liner are included as Attachments 5, 6, and 7, respectively.

3. Closure Requirements

a. Final Cover

- i. Final cover shall be placed on top of the daily or intermediate cover that is used as the grading layer to provide a stable base for subsequent layers.
- ii. Final cover shall be a minimum of 24 inches of recompacted clay with a permeability of less than 1×10^{-7} cm/sec or shall be at least as impermeable as the liner system beneath the cover, whichever is less.
- iii. A minimum of six inches of topsoil shall be installed on top of the soil cover to support vegetative growth.
- iv. Other covers that satisfy the purposes of minimizing infiltration of precipitation, fire hazards, odors, vector food and harborage, as well as discouraging scavenging and limiting erosion, may be submitted for consideration by the administrative authority.
- v. Synthetic material or a combination of clay and synthetic material approved by the administrative authority may also be used as a final cover.
- vi. Alternate final cover used pursuant to Clauses E.3.a.iv and v of this Section must provide performance equivalent to or better than the final cover requirements in Clauses E.3.a.ii and iii of this Section.
- vii. For effective drainage, the side slopes shall be no steeper than 3(H):1(V) and the top of the final cap shall be at minimum a four percent slope.
- b. After a closure inspection and approval, the permit holder shall plant a ground cover to prevent erosion and to return the facility location to a more natural appearance.
- c. Landfills must be closed in a manner that minimizes the need for further maintenance and minimizes the post-closure release of leachate to ground or surface waters to the extent necessary to protect human health and the environment. Quality-control procedures must be developed and implemented to ensure that the final cover is designed, constructed, and installed properly.
- d. The permit holder shall update the parish mortgage and conveyance records by entering the specific location of the facility and specifying that the property was used for the disposal of solid waste. The document shall identify the name and address of the person with knowledge of the contents of the facility. A form to be used for this purpose is provided in LAC 33:VII.311. The facility shall

provide the Office of Environmental Services, Permits Division with a true copy of the document filed and certified by the parish clerk of court.

The closure sequence of the landfill, which addresses the requirements of LAC 33:VII.711.E.3, is provided within the Facility Closure/Post Closure Plan (Appendix I).

4. Upon determination by the administrative authority that a facility has completed closure in accordance with an approved plan, the administrative authority shall release the closure fund to the permit holder.

Cleco acknowledges this regulation.

F. Facility Post-Closure Requirements

- 1. The length of the post-closure care period for landfills may be:
 - a. decreased by the administrative authority if the permit holder demonstrates that the reduced period is sufficient to protect human health and the environment in accordance with LAC 33:I.Chapter 13, and this demonstration is approved by the administrative authority (Any demonstration must provide supporting data, including adequate groundwater monitoring data.); or
 - b. increased by the administrative authority if the administrative authority determines that the lengthened period is necessary to protect human health and the environment in accordance with LAC 33:I.Chapter 13.

Cleco acknowledges this regulation.

2. Post-Closure Care Length

- a. Facilities which receive solid waste on or after October 9, 1993, must remain in post-closure care for 30 years after closure of the facility.
- b. Existing facilities which do not receive waste on or after October 9, 1993, must remain in post-closure care for three years after closure of the facility.
- c. However, if the facility received waste on or after October 9, 1991, the final cover must be maintained as specified in Subparagraph F.3.a of this Section for 30 years after closure.
- 3. The post-closure care, except as otherwise specified above, must consist of at least the following:
 - a. maintaining the integrity and effectiveness of the final cover (including making repairs to the cover as necessary to correct the effects of settling, subsidence, erosion, or other events), preventing run-on and runoff from eroding or

otherwise damaging the final cover; and providing annual reports to the Office of Environmental Compliance, Surveillance Division on the integrity of the final cap;

- b. maintaining and operating the leachate collection and removal system, until leachate is no longer generated or until the permit holder can demonstrate that the leachate no longer poses a threat to human health or the environment in accordance with LAC 33:I.Chapter 13;
- c. maintaining and operating the gas collection and treatment or removal system and the gas monitoring system; and
- d. maintaining the groundwater-monitoring system and monitoring the groundwater in accordance with LAC 33:VII.709.E.

The Facility Closure/Post Closure Plan, which addresses the requirements for landfill post-closure under LAC 33:VII.711.F, is provided in Appendix I of this application.

7.0 LAC 33:VII.713. Standards Governing Surface Impoundments (Type I and II)

Cleco is proposing the construction and operation of a Type facility to handle non-hazardous solid waste generated on-site from the operation of the proposed Unit 3 solid fuel electric utility boilers. The solid waste facility will consist of a landfill and associated leachate\contact stormwater pond. The design and operation of the landfill is addressed within the responses to the standards of LAC 33:VII.711 (Section 6.0 of this application). The design and operation of the leachate pond are addressed in the responses to the standards of LAC 33:VII.713.B.2 within this section.

Schematics of the levee system and other details of the leachate pond design are provided in this application as Figures 24 through 33.

A. Facility Surface Hydrology

1. Facilities located in a 100-year flood plain must be filled to bring site elevation above flood levels or perimeter levees or other measures must be provided to maintain adequate protection against the 100-year flood elevation.

See response to LAC 33:VII.711.A.1 within Section 6.0 of this application.

2. Facilities located in or within 1,000 feet of an aquifer recharge zone shall be designed to protect the areas from adverse impacts of operations at the facility.

See response to LAC 33:VII.711.A.2 within Section 6.0 of this application.

3. Surface-runoff-diversion levees, canals, or devices shall be installed to prevent drainage from the units of the facility which have not received final cover to adjoining areas during a 24-hour/25-year storm event. When rainfall records are not available, the design standard shall be 12 inches of rainfall below 31 degrees north latitude and nine inches of rainfall above 31 degrees north latitude. If the 24-hour/25-year storm-event level is lower, the design standard shall be required. Adequate freeboard shall be provided to prevent over-topping by wave action.

The leachate pond will be located within the RPS property. The leachate pond is designed to contain the contact storm water from the associated landfill during a 24-hr/25-yr storm in addition to the leachate generated within the Ash Management Area. Adequate freeboard is provided to prevent the leachate pond from over topping. The design of the containment system is based on a 24-hour/25-year storm event of 9 inches as listed within the response to LAC 33:VII.521.C.1.c within Section 3.0 of this application. Design schematics for the leachate pond are provided as Figures 25, 26, 31 and 32.

4. Facilities located in the 100-year floodplain shall not restrict the flow of the 100-year flood or significantly reduce the temporary water-storage capacity of the floodplain, and the design should ensure that the flooding does not affect the integrity of the facility or result in the washout of solid waste so as to pose a threat to human health and the environment.

See response to LAC 33:VII.711.A.4 within Section 6.0 of this application...

5. Surface run-on from outside the facility shall be diverted and prevented from entering the facility, with provisions for maintaining adequate freeboard above the requirements of Paragraph A.1. of this Section. A run-on control system shall be installed to prevent run-on during the peak discharge from a 25-year storm event.

Surface run-on from outside the surface impoundment will be diverted and prevented from entering the unit based by the perimeter levee system that surrounds the facility. As discussed within the response to LAC 33:VII.713.B.2, the perimeter levee system will prevent run-on during the peak discharge from a 25-year storm event.

6. Existing surface impoundments, including existing ditches which receive solid waste, which are designed to collect or transport run-on (e.g., stormwater) are not required to comply with any of the requirements of LAC 33:VII.713.A.3, 4, and 5. This Subsection does not relieve such facilities from compliance with the Louisiana Water Quality regulations (LAC 33:Part IX).

Not Applicable. This application is for a proposed facility and does not address existing units or existing ditches.

B. Facility Plans and Specifications

1. Plans, specifications, and operations represented and described in the permit application or permit modifications for all facilities must be prepared under the supervision of and certified by a registered engineer, licensed in the state of Louisiana.

Plans, specifications, and operations represented and described in this permit application have been prepared under the supervision of and certified by a registered engineer, licensed in the state of Louisiana.

2. Levee Construction

- a. Levees or other protective measures must be provided in order to protect the facility against the 100-year flood so as to prevent the washout of solid waste.
- b. If levees are required to protect the facility against the 100-year flood, such perimeter levees shall be engineered to minimize wind and water erosion and

shall have a grass cover or other protective cover to preserve structural integrity and shall provide adequate freeboard above the 100-year flood elevation.

See the response provided for LAC 33.VII.711.B.3 in Section 6.0 of this application.

3. Liners

The pond will be provided with liner system, as shown in Figure 31, designed in accordance with the requirements of LAC 33.VII.521.F.4. The liner system will consist of 36-inch compacted clay layer overlain by a 60-mil HDPE geomembrane liner. The clay will have a maximum hydraulic conductivity of 1.0 x 10⁻⁷ cm/sec. The geomembrane liner will be overlain with a top layer composed of 12-inches of sand.

The area for the proposed pond has material suitable for the clay layer of the liner system. The material in the borrow area consists of sandy clay (CL-SC), clayey sand (SC), silty fine sand (SM), and clay (CH). Construction of the 3-foot clay layer will be performed in accordance with the Liner Quality Assurance/Quality Control Plan. Prior to construction, clay samples will be taken by Shelby tube sampling for each of the soil units, then recompacted to develop optimum moisture curves for compacted and recompacted permeabilities. Specifics of the construction process include the following:

- Excavation of the on-site clay;
- Grading the subsurface to the slopes/elevations indicated on the construction drawings, and then recompacted in place in 6-inch to 8-inch lifts; and
- Density testing will be performed on each lift.
- a. The standards in Paragraph B.3 of this Section apply to liners for Type I and II proposed surface impoundments and for surface impoundments constructed subsequent to the required upgrade date specified in LAC 33:VII.315.G. (Units of surface impoundments on which construction is completed prior to the upgrade date specified in LAC 33:VII.315.G and which have received a temporary permit or standard permit prior to February 1, 1993, are not governed by these liner standards.)

The liner system for the leachate collection pond has been designed in accordance with the standards of LAC 33:VII.713B.3. Details and sections of the system are provided within this application in Figures 29 and 32.

b. The permit holder or applicant must provide and implement a quality-control and quality-assurance plan for liner construction and maintenance that will ensure that liners are designed, constructed, installed, and maintained properly. All facilities must have quality-control plans for the excavations. All excavations and liners shall be inspected and certified by a registered engineer, licensed in the state of Louisiana, with the appropriate expertise.

Cleco has developed and implemented a Quality Control and Assurance Plan for the construction and maintenance of the liner system prior to installation (Appendix J). The Plan will ensure that permitted design of the liner is properly constructed, installed and maintained. As necessary, Cleco will implement an Excavation Plan prior to any excavation work.

The liner system and any excavations will be inspected and certified by an experienced Professional Engineer who is registered in the state of Louisiana.

- c. The permit holder or applicant must demonstrate that the liner is placed upon a base that provides the following:
 - i. adequate support for the contents;
 - ii. maximum resistance to settlement of a magnitude sufficient to affect the integrity of the liner or the proper positioning of the leachate-collection or leak-detection system;
 - iii. maximum resistance to hydrostatic heave on the sides or bottom of the excavation; and
 - iv. maximum resistance to desiccation.

The liner for the unit will be placed upon a base that meets the standards of LAC 33:VII.713.B.3.c. Cleco performed an extensive geotechnical investigation of the proposal landfill area. The results of this investigation are presented in Appendix B of this application. In addition, settlement calculations for the proposed facility are included in this application in Appendix J.

d. Units of surface impoundments shall be lined along the sides and bottom with a composite liner consisting of a geomembrane liner at least 30-mil thick installed directly above and in uniform contact with a three-foot recompacted clay liner having a hydraulic conductivity no greater than 1 x 10⁻⁷ cm/sec which has been installed under the supervision of a registered engineer, licensed in the state of Louisiana and with the appropriate expertise. (If the geomembrane component is high-density polyethylene, then the geomembrane component must be at least 60-mil thick. Any geomembrane liner used must be compatible



with the solid waste and leachate in the unit.) An alternative liner system which will provide equivalent or greater groundwater protection at the site as compared to the composite liner, as demonstrated by generally accepted modeling techniques and based on factors specific to the site and to the solid wastes received, may be used. The burden of proof of adequacy of the alternate liner design shall be on the permit holder or applicant.

The leachate collection pond will be lined along the sides and bottom with a composite liner consisting of a high-density polyethylene geomembrane liner at least 60-mil thick that will be installed directly above and in uniform contact with the three-foot recompacted clay liner having a hydraulic conductivity no greater than 1×10^{-7} cm/sec. The liner will be installed under the supervision of a registered engineer, licensed in the state of Louisiana and with the appropriate expertise. A detailed diagram of the liner system is provided as Figure 27.

e. Secondary liners may be constructed below and in addition to the required composite liner. The specifications of secondary liners must be approved by the administrative authority on an individual basis.

Not Applicable. Cleco is not proposing the installation of a secondary liner.

f. A leak-detection system may be constructed between the required composite liner and any secondary liner. The specifications of the leak-detection system must be approved by the administrative authority on an individual basis.

Not Applicable. Cleco is not proposing the installation of a secondary liner.

g. Special design conditions may be required in areas where the groundwater table is high or where other circumstances warrant such conditions as determined by the administrative authority. These special design standards may include more protective or stringent standards such as secondary liners (described in Subparagraph B.3.e of this Section) or leak-detection systems, or other conditions.

Not applicable. The groundwater table is not high enough to warrant any special designs.

4. Gas Collection and Treatment or Removal System. The following standards apply to Type I and II surface impoundments not performing clean closure:

Not Applicable. No methane or other gases will be produced by the fly ash deposited within the facility including the Ash Management Area and the associated leachate collection pond. In addition, any methane produced underground will not enter the

facility through the liner system. Furthermore, Cleco intends to pursue clean closure on the leachate collection pond, if practicable at the time of final closure.

- a. Each unit of the facility with a potential for methane gas production and migration shall be provided with a methane gas collection and treatment or removal system.
- b. The collection system shall be vented to the atmosphere or connected to a dispersal system or resource recovery system in accordance with accepted practices.
- c. The gas collection and treatment or removal system shall be such that it limits methane gas to lower-explosive limits at the facility boundary and to 25 percent of the lower-explosive limits in facility buildings.
- d. Sampling protocol, chain of custody, and test methods shall be established for all gas collection and treatment or removal systems.

C. Facility Administrative Procedures

1. Recordkeeping and Reports

All records concerning the maintenance, operation, required sampling data and permits belonging to the leachate collection pond shall be kept through at least three years after closure of the landfill facility.

a. Reports

- i. The permit holder shall submit annual reports to the Office of Management and Finance, Financial Services Division indicating quantities and types of solid waste (expressed in wet-weight tons per year), received from in-state generators and from out-of-state generators, during the reporting period. If applicable, the annual report shall also indicate the estimated remaining permitted capacity at the facility as of the end of the reporting period (expressed in wet-weight tons). All calculations used to determine the amounts of solid waste received for disposal and to determine remaining capacity during the annual-reporting period shall be submitted to the administrative authority. A form to be used for this purpose must be obtained from the Office of Management and Finance, Financial Services Division or through the department's website.
- ii. The reporting period for the processor and/or disposer annual report shall be from July 1 through June 30, commencing July 1, 1992, and terminating upon closure of the facility in accordance with the permit.

- iii. Annual reports shall be submitted to the administrative authority by August I of each reporting year.
- iv. The annual report is to be provided for each individual permitted facility on a separate annual-reporting form.
- v. A facility which receives industrial solid waste shall utilize, in its annual report, the seven-digit industrial waste number that has been assigned by the administrative authority to the industrial solid waste generator.

Cleco does not propose to receive any waste from offsite. Cleco will submit to the Office of Management and Finance, Financial Services Division annual reports of the quantities and types of solid waste received from the on-site utility boilers for each reporting period (July 1st through June 30th). Each report will be submitted on the forms obtained from the Division by August 1st following the reporting year. The annual report will also include an estimate of the remaining capacity of the landfill for the end of the reporting period and the seven-digit industrial waste number for the RPS. Supporting calculations for all required quantities will be provided with each annual report.

b. Recordkeeping

All records concerning the maintenance, operation, required sampling data and permits belonging to the landfill shall be kept through at least three years after closure of the landfill facility.

i. The permit holder shall maintain at the facility all records specified in the application as necessary for the effective management of the facility and for preparing the required reports. These records shall be maintained for the life of the facility and shall be kept on file for at least three years after closure.

Cleco will maintain at RPS all records specified in the application as necessary for the effective management of the facility and for preparing the required reports. These records will be maintained for the life of the facility and will be kept on file for at least three years after closure.

ii. The permit holder shall maintain records of transporters transporting waste for processing or disposal at the facility. The records shall include the date of receipt of shipments of waste and the transporter's solid waste identification number issued by the administrative authority.

Not Applicable. The landfill will not receive waste generated off-site.



- iii. Records kept on site for all facilities shall include, but not be limited to:
 - (a). copies of the current Louisiana solid waste rules and regulations;
 - (b). the permit;
 - (c). the permit application;
 - (d). permit modifications;
 - (e). certified field notes for construction;
 - (f). operator training programs;
 - (g). daily log;
 - (h). quality-assurance/quality-control records;
 - (i). inspections by the permit holder or operator;
 - (j). Board of Certification and Training for Solid Waste Disposal System Operator Certificates (if applicable);
 - (k). records demonstrating that liners and leak-detection and cover systems are constructed or installed in accordance with appropriate assurance procedures;
 - (l). monitoring, testing, or analytical data;
 - (m). any other applicable or required data deemed necessary by the administrative authority;
 - (n). records on groundwater sampling results;
 - (o). post-closure monitoring reports; and
 - (p). copies of all documents received from or submitted to the department.

Cleco will maintain at RPS all records specified above as necessary for the effective management of the facility and for preparing the required reports including, but not limited to, those listed in LAC 33:VII.713C.1.b.iii. These records will be maintained for the life of the facility and will be kept on file for at least three years after closure. Records of transporters transporting waste for processing or disposal at the facility under LAC 33:VII.713.C.1.b.ii will not be required as the unit will not accept waste generated off-site.

2. Personnel

a. Facilities shall have the personnel necessary to achieve the operational requirements of the facility.

Key personnel who will be involved in the operation of the proposed facility are provided within the Facility Operational Plan (Appendix E).

No Hazardous waste or waste containing PCB will be disposed of in the facility.

b. Facilities receiving residential and commercial solid waste shall have the numbers and levels of certified operators employed at the facility, as required by the *Louisiana Administrative Code*, Title 46, Part XXIII. Operator certificates shall be prominently displayed at the facility. The Board of Certification and Training for Solid Waste Disposal System Operators and the Office of Environmental Services, Permits Division shall be notified within 30 days of any changes in the employment status of certified operators.

Not Applicable. The facility will not receive residential or commercial solid waste.

D. Facility Operations

1. Facility Limitations

a. The receipt of hazardous waste shall be strictly prohibited and prevented. Any other wastes that present special handling or disposal problems may be excluded by the administrative authority.

The facility will only receive solid waste generated from the operation and maintenance of on-site electric utility boilers and will not receive hazardous waste.

b. Open burning shall not be practiced unless authorization is first obtained from the administrative authority and any other applicable federal, state, and local authorities.

Cleco will not conduct open burning of solid waste at the facility.

c. Salvaging shall be prevented unless approved by the administrative authority.

The surface impoundment will handle leachate and contact storm water for the ash management area (landfill). Salvaging is not a consideration for this type of activity.

d. Scavenging shall be prevented.

Access to the Cleco site is restricted. Scavenging will not be conducted or allowed at the leachate pond.

- e. The following limitations apply to Type I surface impoundments.
 - i. Industrial solid waste and nonhazardous petroleum-contaminated media and debris generated by underground storage tanks (UST) corrective action may be processed or disposed of only in Type I facilities. A comprehensive quality-assurance/quality-control plan shall be in place before the receipt of these wastes.
 - ii. Incinerator ash may be disposed of only in a Type I facility. A comprehensive quality-assurance/quality-control program shall be in place before the receipt of this waste.

Cleco will only dispose ash resulting from the operation and maintenance of the onsite utility boilers. Neither waste generated by underground storage tank corrective action nor incinerator ash will be disposed in the landfill. Therefore, a comprehensive quality-assurance/quality-control plan and associated program addressing these items is not necessary.

- 2. Facility Operational Plans. Operational plans shall be provided which describe in specific detail how the waste will be managed during all phases of disposal operations. At a minimum, the plan shall address:
 - a. the route the waste will follow after receipt;
 - b. the sequence in which the waste will be processed or disposed of within a unit;
 - c. the method and operational changes that will be used during wet weather (particular attention should be given to maintenance of access roads and to water management);
 - d. the recordkeeping procedures to be employed to ensure that all pertinent activities are properly documented;
 - e. the sampling protocol, chain of custody, and test methods that will be used in the gas-monitoring systems;
 - f. the engineering protocols and testing frequencies that will be used to ensure that the grade and slope of both the on-site drainage system and the run-on diversion system are maintained and serve their intended functions;

- g. the engineering protocols and testing frequencies that will be used to ensure that the designed capacity of the impoundment remains unchanged; and
- h. the methods and inspection frequencies that will be used to establish that the levees and required freeboards are maintained.

A complete Facility Operational Plan for the proposed facility that includes a discussion of the leachate collection pond is provided in Appendix E of this application. The Operational Plan provides a description of how the solid waste will be managed during all phases of disposal operations and addresses, at a minimum, all applicable standards under LAC 33:VII.713.D.2.a through h.

3. Facility Operational Standards

a. Air-Monitoring Standards

Not Applicable. Cleco will dispose of only ash generated from the operation and maintenance of the on-site electric utility boilers, which does not have the potential to produce methane gas or other odors. Therefore, air monitoring or associated activities under LAC 33:VII.713.D.3.a are not required for the proposed facility.

- i. Facilities receiving waste with a potential to produce methane gas shall be subject to the air-monitoring requirements.
- ii. The permit holder or applicant subject to air-monitoring requirements shall submit to the Office of Environmental Services, Permits Division a comprehensive air-monitoring plan that will limit methane gas levels to less than the lower-explosive limits at the facility boundary and to 25 percent of the lower-explosive limits in facility buildings.
 - (a). The type and frequency of monitoring must be determined based on the following factors:
 - (i). soil conditions;
 - (ii).hydrogeologic conditions surrounding the facility;
 - (iii). hydraulic conditions surrounding the facility; and
 - (iv). the location of the facility structures and property boundaries.
 - (b). The minimum frequency of monitoring shall be quarterly.
- iii. If methane gas levels exceeding the limits specified in Clause D.3.a.ii of this Section are detected, the owner or operator must:

- (a). immediately take all necessary steps to ensure protection of human health and notify the Office of Environmental Compliance in the manner provided in LAC 33:I.3923;
- (b). within 30 days of detection, submit a remediation plan for the methane gas releases to the Office of Environmental Assessment, Environmental Technology Division. The plan shall describe the nature and extent of the problem and the proposed remedy, and shall include an implementation schedule. The plan must be implemented within 60 days of detection.
- iv. The permit holder shall make prompt notification to the Office of Environmental Compliance in accordance with LAC 33:I.3923 when strong odors occur at facility boundaries or when methane gas levels exceed the limit specified in Clause D.3.a.ii of this Section.
- v. Records of inspections, surveys, and gas monitoring results shall be maintained at the facility.
- vi. Odors shall be controlled by the best means practicable.
- vii. Facilities must ensure that the units not violate any applicable requirements developed under a state implementation plan (SIP) approved or promulgated pursuant to Section 110 of the Clean Air Act, as amended.
- b. Surface impoundments shall be designed, constructed, maintained, and operated to prevent overtopping by overfilling, wave action, or action of storms.
 - Overtopping of the leachate collection pond by overfilling, wave action or the action of storms will be prevented by the perimeter levee system. The pond has adequate capacity to contain the collected leachate, contact storm water, and the maximum 25-year, 24-hour rainfall event.
- c. Surface impoundments shall be inspected daily and after storms to detect evidence of deterioration of the dikes and levees, overtopping, malfunctions, or improper operation. Excessive vegetative growth that prevents proper access, inspection, or operation, or may provide a conduit for groundwater contamination shall be removed.

The leachate collection pond will be inspected daily and after storms to detect evidence of deterioration of the perimeter levee system, overtopping, malfunctions, or improper operation.

d. If a leak in an impoundment is found, the administrative authority shall be notified in accordance with LAC 33:I.Chapter 39.

In accordance with LAC 33:I.Chapter 29, Cleco will notify the LDEQ if a leak in the leachate collection system is found.

e. Waste Testing. The following operational standards apply to waste testing for facilities receiving domestic sewage sludge, industrial solid waste, incinerator ash, or nonhazardous petroleum-contaminated media and debris generated by underground storage tanks (UST) corrective action.

Cleco will dispose within the facility only leachate and contact storm water from the ash management area. Therefore, Cleco will address the requirements of LAC 33:VII.713.D.3.e that apply to a solid waste facility that receives industrial solid waste.

i. Facilities which receive domestic septage or sewage sludge from publicly owned treatment works shall require the waste be tested for toxicity characteristics leachate procedure (TCLP) analysis and priority pollutants prior to acceptance of the waste and annually for two years following acceptance. Each year thereafter, the generator must certify that the waste remains unchanged.

Not applicable, the facility will not receive domestic septage or sewage sludge from publicly owned treatment works.

ii. Facilities which receive industrial waste (Type I) shall require testing for TCLP constituents prior to acceptance of the waste and annually thereafter, or documented process knowledge which confirms that the waste is not a characteristic or listed hazardous waste as defined in LAC 33:V.Subpart 1, or by federal regulations. Nonhazardous petroleum-contaminated media and debris generated from underground storage tanks (UST) corrective action will require testing for the appropriate constituents of TCLP prior to acceptance of the waste.

As the characteristic of the ash material to be disposed within the landfill will not vary greatly over time. As such, the resulting leachate and contact storm water will have consistent characteristics as well. Cleco intends to utilize documented process knowledge to confirm that the ash material is not a hazardous waste. Cleco is not proposing to receive waste from offsite.

iii. Type I facilities which receive incinerator ash shall require testing of the ash for TCLP metals and dioxins prior to acceptance and thereafter quarterly for TCLP metals and annually for dioxins.

Not Applicable. The landfill will not receive incinerator ash.

4. Sufficient equipment shall be provided and maintained at all facilities to meet the facilities' operational needs.

All equipment will be maintained and kept in good operational condition. A list of all needed equipment is provided in the Facility Operational Plan (Appendix E).

5. Facility Operations, Emergency Procedures, and Contingency Plans

As discussed in the response to LAC 33:III.711.D.6 (Section 6.0), a Facility Operational Plan for the facility that addresses operational procedures in addition to emergency procedures and contingency plans to be followed in case of accident, fire, explosion or other incidents is provided in Appendix E of this application.

a. A plan outlining facility operations and emergency procedures to be followed in case of accident, fire, explosion, or other emergencies shall be developed and filed with the Office of Environmental Services, Permits Division and with the local fire department and the closest hospital or clinic. The plans shall be updated annually or when implementation demonstrates that a revision is needed.

See the response to LAC 33:VII.711.D.6 (Section 6.0), the Facility Operational Plan (Appendix E), and the Emergency Response Action Plan (Appendix G).

b. Training sessions concerning the procedures outlined in Subparagraph D.5.a of this Section shall be conducted annually for all employees working at the facility. A copy of the training program shall be filed with the Office of Environmental Services, Permits Division.

See the response to LAC 33:VII.711.D.6 (Section 6.0), and the Facility Operational Plan (Appendix E).

E. Facility Closure Requirements

The Facility Closure/Post Closure Plan, which addresses the requirements for landfill closure under LAC 33:VII.713.E is provided in Appendix I of this application. The anticipated closure date for the landfill is 2040.

1. Notification of Intent to Close a Facility. All permit holders shall notify the Office of Environmental Services, Permits Division in writing at least 90 days before

closure or intent to close, seal, or abandon any individual units within a facility and shall provide the following information:

- a. date of planned closure;
- b. changes, if any, requested in the approved closure plan; and
- c. closure schedule and estimated cost.

Cleco will notify the Office of Environmental Services, Permits Division in writing at least 90 days before closure or intent to close the leachate collection pond and will include the information required under LAC 33:VII.713.E.3.1.

- 2. Preclosure Requirements. The following standards apply to preclosure requirements for surface impoundments with on-site closure:
 - a. All facilities with a potential for gas production or migration shall provide a gas collection and treatment or removal system.

Not Applicable. The unit does not have the potential for gas production or migration; therefore, a gas collection and treatment or removal system is not required.

b. The runoff-diversion system shall be maintained and modified to prevent overflow of the facility to adjoining areas.

The runoff-diversion system will be maintained, and modified if necessary, to prevent overly of the unit to adjoining areas.

3. Closure Requirements

- a. Surface liquids and sludges containing free liquids shall be dewatered or removed.
- b. If a clean closure is achieved, there are no further post-closure requirements. The closure plan must reflect a method for determining that all waste has been removed and such a plan shall, at a minimum, include the following:
 - i. identification (waste analysis) of the wastes that have entered the facility;
 - ii. selection of the indicator parameters to be sampled which are intrinsic to the waste that have entered the facility in order to establish clean-closure criteria. Justification of the parameters selected shall be provided in the closure plan;

- iii. sampling and analyses of the uncontaminated soils in the general area of the facility for a determination of background levels using the indicator parameters selected. A diagram showing the location of the area proposed for the background sampling, along with a description of the sampling and testing methods, shall be provided;
- iv. a discussion of the sampling and analyses of the "clean" soils for the selected parameters after the waste and contaminated soils have been excavated. Documentation regarding the sampling and testing methods (i.e., including a plan view of the facility, sampling locations, and sampling quality-assurance/quality-control programs) shall be provided;
- v. a discussion of a comparison of the sample(s) from the area of the excavated facility to the background sample. Concentrations of the selected parameter(s) of the bottom and side soil samples of the facility must be equal to or less than the background sample to meet clean closure criteria;
- vi. analyses to be sent to the Office of Environmental Services, Permits Division confirming that clean closure has been achieved;
- vii. identification of the facility to be used for the disposal of the excavated waste; and
- viii. a statement from the permit holder indicating that, after the closure requirements have been met, the permit holder will file a request for a closure inspection with the Office of Environmental Services, Permits Division before backfilling takes place. The administrative authority will determine whether the facility has been closed properly.
- c. If solid waste remains at the facility, the closure and post-closure requirements for industrial (Type I) solid waste landfills or non-industrial landfill (Type II) shall apply.

The closure sequence of the leachate collection pond, which addresses the requirements of LAC 33:VII.713.E.3, is provided within the Facility Closure/Post Closure Plan (Appendix I).

4. If the permit holder demonstrates that removal of most of the solid waste to achieve an alternate level of contaminants based on indicator parameters in the contaminated soil will be adequately protective of human health and the environment (including groundwater) in accordance with LAC 33:I.Chapter 13, the administrative authority may decrease or eliminate the post-closure period.

- a. If levels of contamination at the time of closure meet residential standards as specified in LAC 33:I.Chapter 13 and approval of the administrative authority is granted, the requirements of Subparagraph E.4.b of this Section shall not apply. The requirements of Subsection F of this Section, "Facility Post-Closure Requirements," shall apply.
- b. Excepting those sites closed in accordance with Subparagraph E.4.a of this Section, within 90 days after a closure is completed, the permit holder must have entered in the mortgage and conveyance records of the parish for the property, a notation stating that solid waste remains at the site and providing the indicator levels obtained during closure.

Cleco acknowledges this regulation.

5. Upon determination by the administrative authority that a facility has completed closure in accordance with an approved plan, the administrative authority shall release the closure fund to the permit holder.

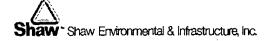
Cleco acknowledges this regulation.

F. Facility Post-Closure Requirements

- 1. The length of the post-closure care period for surface impoundments may be:
 - a. decreased by the administrative authority if the permit holder demonstrates that the reduced period is sufficient to protect human health and the environment in accordance with LAC 33:I.Chapter 13 and this demonstration is approved by the administrative authority (Any demonstration must provide supporting data, including adequate groundwater monitoring data.); or
 - b. increased by the administrative authority if the administrative authority determines that the lengthened period is necessary to protect human health and the environment in accordance with LAC 33:I.Chapter 13.
- 2. The following standards regarding post-closure requirements apply to surface impoundments with on-site closure:
 - a. Post-Closure Care Length
 - i. Facilities which receive solid waste on or after October 9, 1993, must remain in post-closure care for 30 years after closure of the facility.
 - ii. Existing facilities which do not receive waste on or after October 9, 1993, must remain in post-closure care for three years after closure of the facility.

- iii. However, if the facility received waste on or after October 9, 1991, the final cover must be maintained as specified in Subparagraph F.2.b of this Section for 30 years after closure.
- b. The post-closure care, except as otherwise specified above, must consist of at least the following:
 - i. maintaining the integrity and effectiveness of the final cover (including making repairs to the cover as necessary to correct the effects of settling, subsidence, erosion, or other events), preventing run-on and runoff from eroding or otherwise damaging the final cover; and providing annual reports to the Office of Environmental Compliance, Surveillance Division on the integrity of the final cap;
 - ii. maintaining and operating, if applicable, the leak-detection system;
 - iii. maintaining and operating the gas collection, and treatment or, removal system and the gas-monitoring system; and
 - iv. maintaining and monitoring the groundwater-monitoring system.

The Facility Closure/Post Closure Plan, which addresses the requirements for landfill post-closure under LAC 33:VII.713.F is provided in Appendix I of this application.



Tables

Summary of LDOTD Registered Water Wells Within One Mile Radius Rodemach Power Station Gleco Power, L.L.C. Boyce, Rapides Parish, Louislans

DOTD Owner	_			3								Casing				
Well No. Owner Completed	Owner Completed				- E	WAII IIAW	Driller's Name	Water	Date Well	Date Well	Well yield	Diameter	Screened	, - After 14		Available
-			L	245	122CRNB	Domestic	NOSOMOHI			2000	(Manichis)	(IIIMIBS)	IN LOS I VAI	Fauthoe	Longitude	mormation
DEWITT, JAMES 1932	1932	Н	Н		122CRNB	Domestic	FRANK HARPER	88	86/61/20		3 50	148.450		31.4075	-92.6874	0
CLARK S.E 01/36	01/36	Н	Н		122CRNB	Unknown	SIMPSON	0.0			1.50	162-167		31.3/1	92.7 160	3
ODOM, PETER 1937	1837	1837	+	•	122CRNB	Unknown	SIMPSON	2.50	07/19/38			1.50	165-170	31 3744	-07 7152	, 3
-12) FARRER, CLAUDE 1932 320	1832	1832	+		122CRNB	Domestic	BLEVINS L.A	3.00	00/00/32			2		31.3755	-92,7130	3
THOMBSON D. 1932	337	337	┿	╅	22CKNB		BLEVINS L A	12.15	07/18/38		4	- 4		31.3755	-92.7130	<u>≯</u>
INGRAM MAIDE 1024	1027	+	+	✝	122CRNB		SIMMS	52	07/19/38		8	2	168-180	31.3766	-92.7094	× σ
DEWITT JAMES 0478	04/38	+	+	+	133CONIO		HARPERF	200	07/19/38			2	149-169	31.3783	-92.7086	ŏ
SEWELL, FRANK 1920	1920	t	t	+-	122CRNB	Domestic	HAKFEKF	200	07/19/38			7	415-430	31.3863	-92.7061	M D G
930	930	H	H	╆	122CRNR	- Competition O	NIAONO IO	3 5	04770		,	7.30 7.30	369-385	31.3824	-92.6955	o
BALL, DAN 1923 250	1923 250	250	250	╆╌	122CRNB		OXENHALT	38	00/00/32		2	7	405-419	31.3869	-92.6930	χ
SCOTT, A G 1927 350	1927 350	1927 350	350	H	122CRNB		BLEVINSTA	188	200000		ŗ	,	AM IN TITLE	┸	-92.6902	3 0
ARBUTHNOT SAWML 1919 210	1919 210	1919 210	210	-	122CRNB		OXENHALT	076	05/30/38			,	MOLTIFIE	31.309	270076-	≥ . • • • • • • • • • • • • • • • • • • •
BENTLEY LUMBER 1900 175	1900 175	1900 175	175	-	22CRNB		CNKNOWN	8			ŕ			31.4000	92.7005	<u>}</u>
KNIGHT, LUTHER 1935 330	1935 330	1935 330	330	М	2CRNB	Domestic	HARPERF	8				4.00		11.1100	-32.7 JOS	2
SCOTT, A G 08/38 413	08/38 413	08/38 413	413	┪	122CRNB	Abandoned	UNKNOWN	18.05	09/02/38		3	3	403.413	31 3800	22.120	3
US GEOL SURVEY 04/57 97	04/57 97	04/57 97	97	=	11200NWM	_	U.S.G.S.	0.00						31.3713	-92 7211	
US GEOL SURVEY 03/57 98	US GEOL SURVEY 03/57 98	03/57 98	88	7	11200NWM	Test	U.S.G.S.	0.00						31.3719	-92 7100	
TEST IA PUBLIC WORKS 03/14 620	A DIDLIC WORKS 03/4 620	03//4 620	620	+	1200NWM		UNKNOWN	0.00						31.3891	-92.6944	
LIS GEOL SHEVEY 02/78	LIS GEOL SLIBVEY 02/2	02/78	╁	+	122CKNB	Test Hole-Destroyed	THOMAS, DOYLE	29.62	03/26/74		4X2	746-756	TEST	31.3724	-92.7269	EDMO PW
U S GEOL SURVEY	82/20	82/20	╀	t	44200VA	lest note	0.0.6.0	000						31.3847	-92.6908	٥
TEST#1 CENTRALIA FIRE	CENTRAL I A EL EC. 01772	04.072	t	+	TANA TO TO TO		USGS	23.68	05/11/78		<u>`</u>	1.25	68-71	31,3927	-92.6883	W O O
TEST#2 CENTRAL LA FLEC 01772 280	CENTRAL LA FLEC 01/72 280	01/77	200	†	122CENB	Abandoned	STANKIN-SCHEELE	00.0		02/72			190-200	31.3924	-92.7183	E0
TEST#3 CENTRAL LA ELEC 01/72	CENTRAL LA ELEC 01/72	01/72	╀	1	122CTHL		STAMM-SCHEELE	38	1	02/72			270-280	31.3924	-92.7183	8
1 CENTRAL LA ELEC	08/72	08/72	-	г	122CRNB		STAMM-SCHEELE	44.25	08/22/72	77,77			000-076	Т	-92.7.183	ED
2 CENTRAL LA ELEC	08/74	08/74	-	_	122CRNB		STAMM-SCHEELF	52 RS	08/23/74				362 200	24 2020	-92,7103	EDWC W
3 CENTRAL LA ELEC 05/83	05/83	05/83	Н	Г	122CRNB		STAMM-SCHEELE	83.00	05/28/83		25.0	2	250 200	34 2044	-92./1/	× :
9	04/83	04/83	Н	Н	122CRNB		MORPHIS	87.00	04/20/83		36	,	245 223	31.3944	-92.7.103	EDM W
1 BOISE CASCADE 08/95	08/95	Н	Н	П	112RRVA	亨	STAMM-SCHEELE	24.00	08/08/95		٤	18746	415-223	31.3969	-92,7163	71
		575	575	П	122CRNB	Industrial-Lumber	UNKNOWN	8		ORIBE	3	2		34.9010	-92.7.23	2
			50		122CRNB	Industrial-Lumber	UNKNOWN	5		08/80		7	Ī	31.39	-92.009	
MID STATE SAND			8	1 -	122CR	Industrial umber	NANCHARI	3 8	†	20/00		1	1	31.3924	-92.692/	
BOYCE, LA 10/91	BOYCE, LA 10/91	10/91	┝	lω	11200NV	L	I AVNE /MS)	38	†	10,01		1	1	31.3924	-92.6927	
-6058Z W-6 CENTRAL LA ELEC 04/82 33	CENTRAL LA ELEC 04/82	04/82	Н	1	122CRI		SOIL TESTING	14.90	04/27/82	03/07		,	22.22	31.4041	-92,7075	
													3	01.035	007775-	2

E. Geophystical Log
 D. Drüters Log
 M. Mechanical Analysis
 Q. Quality of Weter
 W. Water Level

TABLE 2 GROUNDWATER QUALITY FROM SELECTED WELLS IN EACH OF THE PRINCIPAL AQUIFERS IN VICINITY OF RODEMACHER POWER STATION

Rodemacher Power Station Cleco Power, L.L.C. Boyce, Rapides Parish, Louisiana

Constituents (ppm)	Miocene	Pleistocene	Red River Valley Alluvium
Silica	23	0.33	36
Iron	0.09	0.11	4.8
Calcium	0.6	3.3	108
Magnesium	2.2	0.4	51
Sodium	138	87	47
Potassium	2.8	1	2.2
Bicarbonate	336	24	622
Sulfate	0.4	0	22
Chloride	29	7.8	35
Fluoride	1.4	0	1
Nitrate	0.2	0.7	0_
Dissolved Solids	380	67	609*
Hardness as CO ₃	10	10	
Specific Conductance Micromhos			
at 25 degrees C	609	66	1010
pH (Standard Units)	7.9	5.8	7.4

Source: Water Resources of Rapides Parish, Louisiana Bulletin No. 8, Louisiana Dept. of Public Works, April, 1966

Figures